7/18/2018

Supplier	140=	Acier Ouellette Inc.	Acier Ouellette Inc.	\$109.85 Acier Ouellette Inc.	Acier Ouellette Inc.
Total	\$52.74	\$687.29	\$350.85 Acier Ouell Inc.	\$109.85	\$90.86 Acier Ouelli Inc.
Past					
Aging Days	2	7	7	2	2
Price/Unit	\$ 2.64 / ft	\$ 57.27 / ft	\$ 43.86 / ft	\$ 18.31/R	\$ 6.06 / ft
Receive	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018
Status	Stock	Stock	Stock	Stock	Stock
Containe	8092911	S092912	S092913	S092914	S092915
Received Accounting Container Quantity Job No No					
Received	20	12	σ	Ф	70
Due Date	20 7/16/2018				
Order	20	12	- ω	©	5
Equipment Order ID Qty			1		
Project					
For Part No					
Description	6061-T6 Bar 500 X 1.25: MATERIAL: 6061- T6/T651/T6510/T651/T62 ALUMINIM BAR PER QQ-A-225/8 OR AMS-QQ-A-226/8 OR AMS-QQ-A-200/8 OR ASTM B221 receive ft	M6061T6B1,000X12.000 6061-T6 Bar 1.00 X 12.00 : MATERIAL: 6061- : MATERIAL: 6061- : FOTF651T6510T6511T62 ALUMIUUM BAR PER QQ-A-2258 OR AMS-QQ- A-2258 OR AMS-QQ- A-2268 OR AMS-QQ- A-2008 OR AMS-QQ- A-2008 OR AMS-10 OR ASTM B211 receive ft ASTM B221 receive ft	6061-T6 Bar 1,25 X 4,50: MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS 4-25/8 OR AMS 4-25/8 OR AMS QQ-A-200/8 OR AMS-QQ-A-200/8 OR AMS-QQ-A-200/8 OR AMS-QQ-A-200/8 OR AMS-QQ-A-200/8 OR AMS-QQ	6061T6 Bar 1.500 X 3.000 : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QO-4-225/8 OR AMS-QO- 4-22/8 OR AMS QO-6-200/8 OR AMS-QO- A-200/8 OR AMS-4160 OR ASTM B221 oR ASTM B221 receive ft	M1018R1.375: MATERIAL: AISI 1018- 1025 ROUND BAR M1010520GA AS PER MIL-S-7097 OR ASTM A108 receive ft
Purchased Item	M6061T6B0.500X01.250	M6061T6B1.000X12.000	M6061T6B1.250X4.500	M6061T6B1.500X3.000	M1018R1.375 N
Terms	Net 30			2	2
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PO No	P004033				

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7/18/2018

Supplier Name	Acier Ouellette Inc.	Acier Ouellette Inc.	\$46.40 Acier Ouellette Inc.	Acier Ouellette Inc.	\$256.40 Acier Ouellette Inc.	Acier Ouellette Inc.	Acier Ouellette Inc.
Total	\$146.82 Acier Ouell Inc.	\$282.72 Acier Ouelli Inc.	\$46.40	\$100.63 Acier Ouell Inc.	\$256.40	\$255.84	\$185.54
ast							
Aging F Days	N	0	7	N	2	N	2
Receive Price/Unit Aging Past Date	\$ 12.24 / ft	\$ 8.21 / sf	\$ 3.09 / ft	\$ 5.03 / ft	\$ 25.64 / ft	\$ 85.28 / ft	11.60 / sf
Receive	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018 \$ 11.60 / sf
Status	Stock	Stock	Stock	Stock	Stock	Stock	Stock
Container	\$092916	\$092917	\$093067	890868	\$092919	S092920	S092921
Received Accounting Container Status Quantity Job No							
Received	12	32	15	20	10	n	9
Date							
	12	32	20	15	10	8	16
Project Equipment Order							
Project							
Part							
Description	1010-1025 Steel Bar 1.000 X 3.000 : MATERIAL: AISI 1010- 1025 OR ASTM A36/A366/A569/A570 OR OR CSA G40-21 38W/44W/50W/60W/70W CSA G40-21 OR 38W/44W/50W/60W/70W	5052-H32. 125 Sheet MATERIAL: 6061- THOFEZTREST ALUMINUM SHEET OR PLATE SPECIFICATION: QQ-A- 250/11 OR AMS-QQ-A- 250/11 OR AMS 4025 OR 4027 OR ASTM B209	AISI 4140 Quenched &Tempered Steel Round Bar 0,750"* Dia.: AISI HATU: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	AISI 4140 Quenched &Tempered Steel Round Bar 1.000"* Dia.: AISI 4140 Q&T Round Bar: MATU: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	AISI 4140 Q&T Round Bar : MATL: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	AISI 4140 Quenched &Tempered Steel Round Bar 4,000"" Dia.: AISI 4140 Q&T Round Bar: MATL: AISI 30 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Hot Rolled Steel Plate 0.3125"* (44W) 0.3125"* (44W) STEEL PLATE ASTM A36 OR ASTM A1011 OR 44W OR ASTM A1018
Purchased Item	M1018B1 000X03.000	M5052H32S.125	MT-4140QT-R0.750	MT-4140QT-R1.000		MT-4140QT-R4,000	MT-HRS-P-0.3125
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Supplier Name	Acier Ouellette Inc.	
Total Su	\$90.50 Acier Inc.	\$1,991.16
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Price/Un	\$ 6.03 / 11	
Receive	Stock 7/16/2018	
Status	Stock	
Received Accounting Container Status Receive Price/Unit Aging Past Quantity Job No No	8092922	
Accounting Job No		
Received Quantity	6	184
Due Date		
Order	15	184
For Project Equipment Order ID Qty	d.	Total:
Project		
For Part No		
Description	6061-T6 Round Bar 1.375***: MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS-417 AAS-200/8 OR AMS-QQ-A-200/8 OR AMS-4160 OR AS-200/8 OR AMS-4160 OR ASTM B221 OR ASTM B221 receive ft	
PO No Supplier Item No	M6061T6R1.375	
Terms		
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Line Item No	4/F	
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7/18/2018

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Report No.

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Normes: (ANSI H35.1-1997) & (ASTM B221) Certificate of compliance (Certificat de conformité)

CAST CHEMICHAL COMPOSITION: Cast No. Hardness (Webster) #1 #2 99115-1-1A1

Order No.

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VÉRIFICATION DE MATÉRIEL 40/08

VÉRIFIÉ PAR DATE.

SIGNATURE

SIGNATURE

DATE:

ACIER OUELLETTE INC.

935, Boul. du Hâvre Salaberry de Valleyfield (Québec) 365 5L1 Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248

Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Order - Customer

OUELLETTE VALLEYFIELD DUT Internal Use Only 2018/07/13 Eric Kaehlert CLI0001056 2018/07/05 Net 30 Days Q 040374 S Z Your order N° Delivery date Processed by Customer N° **Credit Terme** 8/0 Salesman Carrier Date PCS NB EXP CMD 00'0 0.00 0.00 00.0 0.00 PIZ_\$CLB PI_\$CLB PI \$CLB PI_\$CLB PI_\$CLB S S S Att: CHANTAL LAVOIE Tél.: 613-632-5200 20.00 12.00 3.00 1,00 6.00 1.00 15,00 Qty ın 15.70 53.88 169.34 75.75 31.75 **Delivery Route** Weight 837 Shipped to , Ontario, 180065 2469 \ 2450 7453 2445 5275 3 ALU PLATE 1 1/4 6061-T651 RANDOM Product Description 1 PC 4-1/2" X 8" ** CERTIFICATE ** FLAT ALU 1/2 X 1 1/4 6061-T6 * ** TRANSIT ST-JEROME 09-07 ** ** TRANSIT ST-JEROME 11-07 ** 4 FLAT ALU 11/2 X 3 6061-T6 * FLAT ALU 1 X 12 6061-T6 * 5 ROUND CR 13/8 1018 (R) 1270 , ABERDEEN ST. HAWKESBURY, Ontario, K6A 1K7 1 X 12' ** CERTIFICATE ** 1 X 20' ** CERTIFICATE ** 1 X 15' ** CERTIFICATE ** 1 X 6' ** CERTIFICATE ** DART AEROSPACE LTD PAL-1146061-V FAL-12114 SAW CUT SAW CUT FAL-1123 FAL-112 LINE# 3 RCR-138 LINE#1 LINE#2 LINE# 5 LINE#4 Billed to F. 4 N

Order - Customer



	Product Description	Weight	Qty	N S		PCS NB			Inter	Internal Use Only	Only
					CMD	EXP	B/0	IN	H	S	TUO
, -	6 FLAT CR 1 X 3 1018 (R) FCR-13 1 X 12' R/L ** CERTIFICATE ** LINE# 6	122.40	12.00	PI_\$CLB	0.00				The second secon		American de la constitución de l
	EET 1/8 5052-H32 RANDOM 4262 8' PVC 1 SIDE IFICATE ** *********************************	56.38 51-4	32.00	P12_\$CLB	0.00						
	8 ROUND 4140 HEAT TREAT 3/4 (R) 1 X 20' R/L ** CERTIFICATE ** LINE# 9 LINE# 9 LINE# 9	30.04	20.00	PI_\$CLB	0.00	1					
	9 ROUND 4140 HEAT TREAT 1 (R) R4140-1H SAW CUT 1 X 15' ** CERTIFICATE ** LINE# 10	40.05	15.00 1.00	PI_\$CLB	0.00						
	** CERTIFICATE **	135.20 135.20	10.00	PI_\$CLB UN	0.00	Annual Control of the	* ************************************				
	11 ROUND 4140 HEAT TREAT 4 (R) R4140-4H SAW CUT 1 X 3" ** CERTIFICATE ** LINE# 12 12 PLATE 44W 5/16 RANDOM 4124	132.71	3.00 3.00 16.00	PI_\$CLB UN PI2_\$CLB	0.00						

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Order - Customer

34	Product Description	Weight	Qty	Σ		PCS NB			Inter	Internal Use Only	Only	
ST-JERONE 11-07 ** ** ** ** ** ** ** ** ** ** ** ** **	of the contract and another than the contract and the con				CMD	EXP	8/0	IN	I	S	1	
ST-JEROME 11-07 **	COUPE AU FEU 1 X 4' X 4' ** CERTIFICATE **		204.00	LBS_\$CLB								
CERTIFICATE ** 5132 CERTIFICATE ** Focal Weight (LBS):1 1 092.86 NIR : R-10951G-6 NIR : R-10951G-6 NIR : R-10951G-6 NIR : R-10951G-6 Nil R : R-10951G-6 For annual to property of "Ader Ouellette Inc" until payment is made in full, complete and cashed. All took materials are at the buyer's expense. The warranty offered by the smuthattening is transformed by the manufacture and his warranty is transformed by a conference on the warranty is transformed by a money. Any offered by a manufacture of any in the manufacture control is warranty in the seller, at his choice to dain for the balance due or the repressession of the goods soid. All dains must be made to the manufacture of the ma		40704 M								***************************************		
Fig. 1 1 092.86 Iterials remain the property of "Acter Ouellette Inc" until payment is made in full, complete and cashed. All tost materials are at the buyer's expense. The warranty offered by a cashe as offered and honorised by the manufacturer and his warranty is transferred by "Acier Ouellette Inc" to the dient. The buyer hereby accepts to respect the 30 days. Any default in wall lead to payment by acceleration and early acceleration early early acceleration early early acceleration early early acceleration early e		1 -		PL_\$CLB	00.00							
refals remain the property of "Acter Ouellette Inc" until payment is made in full, complete and cashed. All test materials are at the buyer's expense. The warranty offered by the manufacturer and his warranty is transferred by "Acter Ouellette Inc" to the client. The buyer hereby accepts to respect the 30 days. Any default in warranty is transferred by "Acter Ouellette Inc" to the client. The buyer hereby accepts to respect the 30 days. Any default in will lead to payment by acceleration and permits to the seller, at his choice to claim for the balance due or the repossession of the goods soil. All claims must be made this secret admaged, cut or modified cannot be returned. All goods returned must be with our authorization and are subject to Belivered By: Time	Reat!	975C)								***************************************		
totals remain the property of "Acter Ouellette Inc" until payment is made in full, complete and cashed. All fost materials are at the buyer's expense. The warranty offered by the manufacturer and his warranty is transferred by "Acter Ouellette Inc." to the client. The buyer hereby accepts to respect the sold honored by the manufacturer and his warranty is transferred by "Acter Ouellette Inc." to the client. The buyer hereby accepts to respect the and honored by the manufacturer of any default in and honored by the manufacturer of a subject to admissible to the bayment by acceleration and permits to the seller, at his choice to edin for the basinere due of the goods sold. All claims must be made this acceleration and permits to the seller, at his choice to edin for the basinere due of the goods sold. All claims must be made this acceleration and permits to the seller, at his choice to edin for the basinered and any default in a condition of the basinered sold. All claims must be made this acceleration and permits to modified cannot be returned. All goods returned must be with our authorization and are subject to belivered By: Delivered By: Time Customer's Signature Y M D Deposit	anditions :	Fotal Weight	(LBS):1 1 092.86		VIR : R-10	9516-6						
Verified By: Time Customer's Signature Y M D Total (\$CAD) 2 97 Deposit Image: Customer's Signature Image: Customer's Sign	I sold and delivered materials remain the property of "Acter Ouellette Inc." until pay der Ouellette Inc." is the same as offered and honorisd by the manufacturer and holwing conditions. Net 30 days from billing date and the buyer accepts to pay admispect with his confract will lead to payment by acceleration and permits to the sell thin five (5) days with this document enclosed. Any merchandisc that has been da 25% restocking charge.	ment is made in full, complete its warranty is transferred by "/ inhistration charges of 2% per a lier, at his choice to claim for th maged, cut or modified cannot	and cashed. All tost materials a Acier Ouellette Inc." to the client month (24% per annum) on all ne balance due or the repossess be returned. All goods returnes.	re at the buyer's exper i. The buyer hereby ac past due amounts over ion of the goods sold, i inust be with our auti	ise. The warrai cepts to respec 30 days, Any All claims must horization and	nty offered by the default in be made are subject to				should 1	,	
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Dart Aerospace Ltd. 1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada

PURCHASE ORDER PO040374

Tel (613) 632-5200

Supplier: ACI001-VC

Ship To:

Acier Ouellette Inc. 935 Boul. Du Havre

Valleyfield QC

J6S 5L1 Canada

1270 Aberdeen Street

Hawkesbury

K6A 1K7 Canada Phone: 613-632-5200

ON

Phone: 800 667 4248 Fax: 450 377 5696

PO No:

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PO Date:

6/29/18

Due Date: Purchase Order 7/11/18

Revision:

Revision Date: Ship-To Contact:

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Freight Terms:

Special Comments: QUOTE NO. sou0117139

				Items							
Line Item	Job	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extende Price
1		M6061T6B0.500X01.250		6061-T6 Bar .500 X 1.25 : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS-QQ- A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ- A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221 receive ft	Firmed	7/11/18		2011	20 ft	\$2.637/ N A(1/67)	\$52.7 \(\frac{\theta}{\theta}\)
2		M6061T6B1.000X12.000		6061-T6 Bar 1.00 X 12.00 : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS-QQ- A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ- A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221 receive ft	Firmed	7/11/18	12 ft	Off	12 ft	\$57.274166/ft All IloV	
3		M6061T6g1.250X04.500		6061-T6 Bar 1.25 X 4.50 : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS-QQ- A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ- A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221 receive ft	Firmed	7/11/18	8 ft	8 H	8 ft	\$43.85625/ft A(8107)	

Line Item 1	Job	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extende
4		M6061T6B1.500X3,000		6061T6 Bar 1.500 X 3.000 : MATERIAL: 6061- :T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS-QQ- A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ- A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221 receive ft		7/11/18	6 ft			\$18.308333/ft H (8/67)	\$109.
5		M1018R1.375		M1018R1.375 : MATERIAL: AISI 1018- 1025 ROUND BAR M1010S20GA AS PER MIL-S-7097 OR ASTM A108 receive ft	Firmed	7/11/18	15 ft	0 ft 15ft	15 ft	\$6.0573333/ft A(8/07)	\$90.8
6		M1018B1.000X03.000	other the property of the state	1010-1025 Steel Bar 1.000 X 3.000 : MATERIAL: AISI 1010- 1025 OR ASTM A36/A366/A569/A570 OR OR CSA G40-21 38W/44W/50W/60W/70W CSA G40-21 OR 38W/44W/50W/60W/70W	Firmed	7/11/18	12 ft	0 ft	12 ft	\$12.235/ft N 18/27/18	\$146.8
7		MT-1144-R4.500		1144 Steel Proof Round Bar 4.500"	Firmed	7/18/18	8 ft	O ft	8 ft	\$15.210833/ft	\$121.6
8		M5052H32S.125		5052-H32 .125 Sheet MATERIAL: 6061- T6/T62/T651 ALUMINUM SHEET OR PLATE SPECIFICATION: QQ-A- 250/11 OR AMS-QQ-A- 250/11 OR AMS 4025 OR 4027 OR ASTM B209	Firmed	7/11/18	32 sf	9.sf 32.sf	32 sf	\$8.21/sf A1 / 8/6)//	
9		MT-4140QT-R0.750	 	AISI 4140 Quenched &Tempered Steel Round Bar 0.750" Dia. AISI 4140 Q&T Round Bar MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	7/11/18	20 ft	0 ft	20 ft	\$3.0935/ft A(18/67/18	
10	N	MT-4140QT-R1.000	8 E : : :	AISI 4140 Quenched RTempered Steel Round Bar 1.000" Dia. AISI 4140 Q&T Round Bar MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM	Firmed	7/11/18	15 ft	0 ft		\$5.031333/ft AT 18107/1	\$75.47

	ne em	Job	Don't	Supplier		04	Due	Order	Received		Unit	Extende
3	em 1	JOB	Part MT-4140QT-R2,250	Part No	Description AISI 4140 Q&T Round Bar	Status		Quantity	Quantity			Price
,	'		W 1-4 140Q 1-1(2.250		: MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT		// 11/18	10 ft	0 ft 10 ft	10 ft	\$25.64/ft # 18/67/	i
1:	2		MT-4140QT-R4.000		AISI 4140 Quenched &Tempered Steel Round Bar 4.000" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	7/11/18	3 ft	0 n	3 ft	\$85.28/ft Al (8/07)	
13			MT-HRS-P-0.3125		Hot Rolled Steel Plate 0.3125" (44W) MATERIAL: HOT ROLLED STEEL PLATE ASTM A36 OR ASTM A1011 OR 44W OR ASTM A1018	Firmed	7/11/18	16 sf	[65F	16 sf	\$11.59625/sf Al (8/5	
ine Iter	m Note	1 pcs	4 ft x 4 ft					of May 1 (may 2) and 1 and 200				
14	9		M6061T6R1.375		6061-T6 Round Bar 1.375" MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ- AA-200/8 OR AMS-QQ-A- 200/8 OR AMS 4160 OR ASTM B221 OR ASTM 3221 eceive ft	Firmed	7/11/18	15 ft	15ft	1	\$6.033333/H	\$90.5
15			MT-4140-B-1,000X1.000	: : :	1140 Steel Bar 1.000 X 1.000 AISI 4140N STEEL BAR PER MIL-S-5626, AMS 6382, AMS 6349, AMS 6529 eceive ft	Firmed	7/19/18	24 ft	O ft	24 ft	\$20.495833/ft	\$491.90
16		A Principle and property of the second state o	MT-4140-S-1.500X2.000	2 : S F M = N	1440 Steel Bar 1.500 X 2.000 MAT'L: AISI 4140 / 4142 STEEL SHEET OR PLATE MINIMUM ROCKWELL C 28 RC MAXIMUM ROCKWELL C 32 RC ASTM A829, AMS 6395	Firmed	7/19/18	6 ft	O ft	6 ft	\$42.50/ft	\$255.00

Order Notes

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Order Notes

Procurement Quality Clauses

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

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SPECIFICATION CONTROL DRAWING

O

PURCHASE MATERIAL 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR

QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116) OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160) OR ASTM B211 OR ASTM B221

PART NUMBER:

M6061T6B T.TTT X WW.WWW

THICK

WHERE "T.TTT" = THICKNESS IN INCHES
"WWW.WWW" = WIDTH IN INCHES MIDTH

E.G. 1.0" X 12.0" BAR = M6061T6B1.000X12.000

B REMOVE QQ.4-250/11 OPTION REFORMAT NOTES, ADD
A NEW ISSUE M6061T6B DART AEROSPACE LTD Ç 48 SG 09.07.13 01.06.08 DATE

DRAWN THICKED

09.07.13

6061-T6 BAR

SHEET 1 OF 1 SCALE NTS

REV. B

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MATERIAL RECEIPT INSPECTION FORM

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	SS CHECK.							COT SAMPLE PIECE
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						W	Y	EXTRUSION REPORT
							^	DOES THIS REQUIRE AN
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	SAUGE CONTRACTOR OF THE SAUGE					N	(4)	CORRECT M# ON THE MATERIAL
				1100	C 5112	N	1	NORRECT MATERIAL IDENTFICATION
				1958	2/1	N	N	CORRECT REF # TO LINK CERT
						(N)	<u>\</u>	PHOTO REQUIRED
				1179	1.41.4	N		CORRECT THICKNESS CORRECT THICKNESS
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	*100	**************************************				N	X	SURFACE DAMAGE
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1120688/40	:ONO: \$0000 ::ON	PO / BATCH I		050	10×01	5.08	191	MATERIAL: M606)

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

:3TAQ

DATE: 18/67/18





Service Center Metals

Prince George, VA 23875 5850 Quality Way

CERTIFIED INSPECTION REPORT AND TEST RESULTS

FOR EXTRUDED PRODUCTS

DUR ORDER MUMBER 289111 TEM

D.Schroeder (Canada) 3/30/2017 CERTIFICATION SPECIFICATION ASTM-B221-14 No Stencil AMS-QQA-200/8 Rev-A

We hereby certify that the material covered by this report has been inspected in accordance with the most recent certification revision, and has been found to meet the applicable requirements described herein, including any specifications forming a part of the description, and that samples representative of the material met the composition limits and had the mechanical properties shown. Items produced and certified as 6061-T6511 also meet the requirements of 6061-T6.

Quantity Certified

2,032 lbs

12pcs

CUSTOMER PART NUMBER

C74189

V832661-PL0741

PL 1.000 x 12.000

CUSTOMER PO

ALLOY / TEMPER 6061-T6511

SALESPERSON

DATE OF SHIPMENT

PL0741

MANIFEST NUMBER

1 201704837 /	Tests Lot No.	Mechanical Properties
	K052115-116	RS compliant.
3/30/17	mannari - Vernancesia assignificativi primatara mantala AAA, atalah (AAA) primata orang ada canana anaman na a	Test Date
50.40 50.40	ANN	Ultimate Tensile Strength (KSI)
t0 46.50 46.50		Yield Strength
50 16.60 16.60	B.i.	Percent Elongation

Chemical Composition for Aluminum Alloy 6061

Lot No. Alloy S Fe

Cast#

001M170313A\\201704837

6061

0.75 0.38

0.33

0.10

0.89

0.10

0.07

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0.15

United States of America

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Each

Others Total

Melt Source:

97.36

Print Date: 3/30/2017

Calvin J. Wiggins, Director of Quality & Technical Services

Rev 9/8/16

SCM products are melted and extruded in the USA

SPECIFICATION CONTROL DRAWING

SPECIFICATION: PURCHASE MATERIAL 606 T6/T651/T6510/T6511/T62 ALUMINUM BAR

OG-A-225/8 OR AMS_OG_A-225/8 (OR AMS 4117/4128/4115/4116) OR OG-A-200/8 OR(AMS-OG-A-200/8) OR AMS 4160) OR ASTM B211 OR ASTM B221

B

PART NUMBER:

M6061T6B T TTT | X | WW.WWW

THICK

WHERE "T.TTT" = THICKNESS IN INCHES "WW.WWW" = WIDTH IN INCHES MIDTH

E.G. 1.0" X 12.0" BAR = M6061T6B1.000X12.000

DART AEROSPACE LTD
HAVWESBURY ONTARIO, CANADA

2 8 Ç 4B

01.06.08 09 07 13 DATE

B REMOVE QUA-250/11 OPTION REFORMAT NOTES, ADD ASTM B211 B211 (2N 07-1)
A NEW SSSLE

MFG. APPR. DRAWN CHECKED DESIGN

M6061T6B

REV. B SHEET 1 OF 1 SCALE

6061-T6 BAR

O 2001 BY DART AEROSPACE LTO

09.07.13

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MATERIAL RECEIPT INSPECTION FORM

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Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

ANITAJE :elsd 1/53/5018 DITO a CERTIFICATE DECE PHENOLON STOZILOGS DEL vimetco CERTIFIED BRAC-IQNot 1726 :ON WILL TEST

CUSTOMER

BILL OF DELIVERY CONTRACTIORDER : 2224

TRUCK/CONTAINER : MSCU 5764780 11584608 :

128T):R34M3T

YOULA

TTNOSY-A-DD-EMA; E0588 SARA; SACH ISDA; WTSOP, EMA; E058 MTEA : ACCORDING TO

.xem

1 MPa = 1 Nimm2 = 0.145 ksi = 0.102 kgfimm2

ACTUAL MECHANICAL PROPERTIES

1.25"THX48.5"WDX144,5"LT

LOTIDIMENSIONS (mm); 70190093

MATERIAL

Serv. Inspecția Calității Punct de luctu Slatina Str. Milcov Hr. 1, Jud. OIL

of galbroopA

REMARKS:

XSM.

195911168

HOTAB

Z99111ES

LOT / BATCH

2005107

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OUBLITY CONTROL DEPT.
Marlus Oliosnu. End
Marlus Oliosnu. End
SC ALRO SA SLATINA

EN 10504:5004

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ACTUAL CHEMICAL ANALYSIS %

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SETALY MUINIMULA :

COG 11/PO-051/Rev. 4/2012

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onovis@ovis 326 SC4 6550 ; THE SC4 8450 (04)+ :onord shows Utong, Pert. O. A. & ORJA

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AINAMOR-BITUSIE-810062

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ACCORDING TO: ASTM B209:2014, AMS 4027H:2009; ANSI H36.2.3013; ASME 5B269:2015; AMS-QQ-A-26011:1897

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8.0

65'0

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ed! THOISW TON

Specified values:

1 lbs = 0.4536 kg

91.0

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7'0

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\$25169,661069

CASE

Other- Each- Max.: 0.05

90.0

6000

IN

46.2

6'91

KSI

SID

45

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0 9 0 PURCHASE MATERIAL: (606)-T6/T62/T651 ALUMINUM SHEET OR PLATE PREFERRED SIZE: PART NUMBER: SPECIFICATION: .XXX BY 4FT BY 8FT FOR SHEET WHERE "XXX" = THICKNESS (IN INCHES)
AND "W:WWW" = WIDTH (IN INCHES, OPTIONAL, FOR SPECIFYING CUT PLATE) M6061T6S|XXX| X | W.WWW | QQ-A-250/11 OR AMS-QQ-A-250/11 OR AMS 4025 OR 4027 OR ASTM B209 EG. 0.063" THICK SHEET = M6061T6S.063 EG. 3.5" WIDE BY 0.500" THICK PLATE = M6061T6S.500X3.500 SPECIFICATION CONTROL DRAWING DINCOM TIME 2018 MAR 1 3 40 APPROVED DESIGN
DRAWN
CHECKED
MFG. APPR.
APPROVED DE APPR. REFORMAT DWG, ADD B209 SPEC (ZN D8-1), REF PAR 08-020A ADD PLATE AND T651 SPEC DS
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NO
DPAWING NO.
LIFS
M6061T6S
SHEET 1 OF I
SCALE
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6061-T6 SHEET/PLATE SPEC NITS
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THE SHEET AND THE CONTROL OF THE NEW ISSUE DESCRIPTION ę 짂 M 01.06.08 17.12.13 09.07.13 DATE

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17.12.13

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		1120	36-8-00	->00/	N	(8)	CORRECT GRAIN DIRECTION
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Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

:3TAQ

SIGNED OFF BY:

DATE: 18/57/18

INSPECTED BY:

LHER FUL 09819

F611-744

SHAC

Global Vietnam Co.Ltd GLOBAL VIETNAM ALUMINIUM COMPANY LIMITED

Address: MY XUAN B1-CONAC INDUSTRIAL ZONE, MY XUAN TOWN, TAN THANH DISTRICT,

BY BIY ADMG TAU PROVINCE, VIET NAM

+84(0)043354324

:[5T

Fax:

PO number: P-18057

184(0)643924953

Date: April 26", 2018

MILL TEST CERTIFICATE

Date: 01/03/2018 Meat Numbert SXR180264 Bundle number: P-18057-008,P-18057-007 Length (inch): 240 Flat Bar 1.5" x 3" x 240" 6061-T6 D00141 Production Description: ALUMINIUM EXTRUDED PROFILES Alloy & Temper; 6061-T6 Die Number: D00141 Item Code: 1931000 Date of Issue: April 10, 2018 I'C No": DC HWN811301 Shipping Ref No.: 18-0817

Applicable Specifications; ASTM B221STANDARDS

CHEMICAL ANALYSIS: 3%

H TOTAL Remark:	EVC	PW.	IJ	uΖ	Cr	пМ	пЭ	93	BM	IS
5 <0.10 26/02/2018	50.0> 1	282.88	610.0	0.033	960.0	910'0	122.0	112.0	006.0	865.0

8102/20/92 2.01 E. SE 38.6 Remark: Elongation % LN 2" Yield Strength (ksi) Ult. Strength (ksi)

All profiles, showing material shipped match aluminium alloy as per standard, with chemical analysis to

match aluminium alloy standard.

Quality Manager

number,

on the date of purchase and are available for review upon request, referring to ASTM and the PO noted and have been found to meet all the applicable requirements, Certifications are kept on file for 36 We hereby certify that the stem listed have been checked and tested in accordance with the specifications

CLOBAL VIETVAM ALUMIUM лини ином тойи сли управетильн TRUNG TÂM KIÊM NGJIJÊM CÔNG TY

CO. LTD TISTING CENTER

SPECIFICATION CONTROL DRAWING

SPECIFICATION: PURCHASE MATERIAL: 6061-T6/1651/T6510/T6511/T62 ALUMINUM BAR

QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116) OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160) OR ASTM B211 OR ASTM B221

B

PART NUMBER:

M6061T6B T.TTT X WW.WWW

WHERE "T.TTT" = THICKNESS IN INCHES
"WW.WWW" = WIDTH IN INCHES

THICK

HIDIM

E.G. 1.0" X 12.0" BAR = M6061T6B1.000X12.000

CHECKED B REMOVE (IQ.A.250/11 OPTION, REFORMAT NOTES, ADD ASTM B271/B271 (ZND7-1) NEW ISSUE 09.07.13 6061-T6 BAR NIS M6061T6B DART AEROSPACE LTD Ç KB AB SG REV. B SHEET 1 OF 1 SCALE NTS 01.06.03 09.07.13 DATE

DESIGN

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MATERIAL RECEIPT INSPECTION FORM

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I DO SPO	College . Old	1101/04/04		- 6	7	011	17 / VV

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

Fax: 946480128

Email: calpradera@calibradospradera.es

www.calibradospradera.es

CERTIFICADO DE CALIDAD/OUALITY REPORT

I,E

EN 10204/DIN 20049

De acuerdo a /Made according (o:

N. CERTIFICADO / CERTIFICATE NR.: 46814

Productos Calibrados de acero. Condiciones técnicas de suministro. Vorma: EN 10277 CUSTOMER Delivery Note Nr. LES ACIERS TRANSBEC (1997) LTEE CLIENTE Þ189Þ ALBARAN

. HLLON

Bright steel products. Technical delivery conditions.

PRODUCTO SOLICITADO / PRODUCT ACCORDING ASTWA 108

ant to	2000	ACMINISTRATION	803	ni cirilar OPEC AIBCLON	Merchine Order
A CONTRACTOR OF THE PARTY OF TH	13000	and the first transfer and	902.1	1018 RED TORNEADO 88,90 (3 1/2")	91041-0
06'88	EISLEI	201,0 -	PPO'I	1018 RED ESTERADO 34,93 (1 3/8")	00/.91-1
£6'\$£	Z661E1	150,0 -	1.018	1018 RED. TORNEADO 74,61 (2 15/167)	00L9v-L
19'7/	666/51	201,0 -	840.1	CSAT 1) 01,86 OGASITIZE GEST 8101	707.LV-40
91,86	762851	150,0 -	***************************************	1018 KED EZLIKVDO 49,21 (1 15/16")	AR-47152
1764	PEZ8E1	940'0	870.1	1018 RHD ESTIBADO 38,10(11/2)	88E9+-V
38,10	138324	150'0~	020.1	(1018) RED. ESTIRADO 34,93 (1 3/8")	1609p-v
€6'₽€	924861	150'0 -	966	1018 RED ESTIRADO 38,10(11/2")	7B-47472
38,10	138488	150'0 -	340.1	1018 RED. TORNEADO 87,31 (3 7/167)	TL+L+-W
15,78	684851	201.0 -	814.1	TOTA RED. ESTIRADO 38,10 (1 1/2")	78274-1
01,86	138518	190'0 -	101.1	TOTAL ESTIFICADO 50,80 (27)	\$659\$ V
08'05	138621	940'0 -	₽ 71.1	1018 RED. RSTRADO 38,10 (17/2)	77777
91,85	138628	150'0 -	886	1018 RED. ESTIRADO 44,45 (1.3/47)	1-47424
57'77	629851	9/0'0-	976	1018 RED ESTIRADO 60,33 (2.3/87)	1-47424
66,33	089861	920'0 -	801.1	1018 RED. ESTIRADO 55,56 (23/16")	10-47504
95'55	758881	940'0 -	\$50.1	1018 RED. ESTIRADO 55,56 (2.3/16")	5/11-46896
95,55	70/861	940'0 -	271.1	1018 RED. TORNEADO 76,20 (3")	96896-MG
76,20	138703	zor'o -	901.1	1018 RED. HSTRRADO 34,93 (13/8")	96891-MC
£6'Þ£	138300	150'0 -	766	1018 RED. ESTIRADO 50,80 (27)	96891 MG
08,02	138701	940'0	9/0.1	1018 RED ESTIRADO 61,91 (27/167)	58574-
16'19	LE68ET	920'0 -	968.1	1018 RED. ESTIRADO 33,54 (15/167)	60777-L
\$5,55	656881	150'0 -	846	Court Name of the Court of the	'

Composición química de la colada / Chemical Analysis of Heat

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000'0	0,022	£10'0	089'0	091'0	SI 09901	138354	00'0	01'85
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015.0	120,0	0,012	069'0	091'0	SI 55011	138488	00'0	01.85
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0,310	0,024	0,012	069'0	091'0	SI SSOIF	138218	00'0	01,85
0,310	150,0	110,0	069'0	071,0	SLOSIIF	138621	00'0	08'05
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181,0	7.20,0	800,0	859,0	1910	V 9000v	679881	000	St'DD
015,0	0,031	110,0	069'0	0/1,0	41 145 IS	138630	00'0	EE'09
691'0	920,0	810,0	0,725	0,165	V 58165	LV98E1	00'0	95,56
691'0	9700	810,0	6,725	591'0	39183 A	138702	00,0	95'55
0,300	0.030	£10°0	007,0	0.170	VI 121 12	138703	00'0	07'94

48400 NGAO-MIRAVALLES/VIZCAYA (SPAIN) ARANA Y LUPARDO, 2

Fax: 946480128

Tmo.: 946480211

www.calibradospradera.es Email: calpradera@ealibradospradera.es



CERTIFICADO DE CALIDAD/QUALITY REPORT

F.E

EN 10504/DIN 20046

De acuerdo a /Made according to:

A. CERTIFICADO / CERTIFICATE NR. 46814

CUSTOMER LES ACIERS TRANSBEC (1997) LTÉF CLIENTE MOTHER: EN LOZTT Delinery Now Nr.

VLBARAN

Productos Calibrados de acero. Condiciones técnicas de suministro.

Bright steel products. Technical delivery conditions.

HUMAN

015,0	0,024	0,012	069'0	091'0	SI 7001A	656881	00'0	12,58
005,0	0.030	210,0	069'0	0/10	SISIZIF	LE68E1	00'0	16'19
0,310	160,0	110'0	069'0	0/1/0	S105111	107851	00'0	08'09
0,310	0,024	210,0	069'0	091*0	SI LOOI	138700	00'0	€6'4€
IS	\$	d	utc	С	:			
%	%	%	9/4	%				

Caracteristicas mecánicas / Mechanical properties

41894

BH assard searbrott fili	Alargamiento Elongation Lo=50 mm.	Limehistico Yield point Smm\N %2,0	Resistencia Tens. strenght Wimm?	COLADA	OF	MEDIDA
161,00	29,00	00,712	452,00	SI ISOIT	137513	06'88
00'091	00'0	00'0	00'0	SI L001†	Z661E1	\$4,43
00'951	00'0	00'0	00,0	STICITA	666481	19'0/
00°451	00'0	00'0	00'0	SI 0990t	138232	01,88
00'LL1	. 00'0	00'0	00,0	S10911b	138234	12.64
124,00	00'0	00'0	00'0	SI 09901	138374	01,85
160,00	00,0	00'0	00'0	SI 4001F	138476	34.93
153,00	00'0	00,0	00'0	SI 55017	138488	01'88
00'191	00,62	317,00	452,00	SI 19015	684861	16,78
00,521	. 00,0	00,0	00'0	SI 55014	815881	01,88
00°LL1	00'0	00,0	00'0	S1 09117	138621	08'09
00,521	. 00,0	00,0	00*0	S1 9901>	138628	01*88
00'0	. 00'0	94,718	08,024	₹ 9000₽	679881	St. A1
00'591	00'0	000	00,0	SIZPIIP	138630	££.08
00'0	00'18	302,82	42924	A 58195	138647	95,55
00'0	00'18	302,82	72°627	¥ £816£	138702	95,88
156,00	00'0	00'0	00'0	SIIZIIÞ	138703	02'92
00,081	00,0	00,0	00,0	SI 4001b	138700	£6°48
00°LL1	00,0	00,0	00,0	SIOSIIF	107881	08'09
00,981	00'0	00'0	00,0	SISIZI	LE68E1	16°19
00'091	00'0	00'0	00,0	SI 4001>	656881	\$5,5£

Calidad Superficial

	1	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
FN 10311-1	OE	Describition

Operlanderes: Barras de acero estiradas / torneadas en frio sin alear

www.calibradospradera.es Email: calpradera@calibradera.es Fax: 946480128 112084949 : onfT 48490 UGAO-MIRAYALLES/VIZCAYA (SPAIN) ARANA Y LUPARDO, 2



CERTIFICADO DE CALIDAD/QUALITY REPORT

I.E

EN 10204/DIN 20049

De acuerdo a /Made according to:

N. CERTIFICADO / CERTIFICATE NR. 46814

CESTOMER LES ACIERS TRANSBEC (1997) LTÉE CLIENTE

Norms: EN 10277

FeebalDate: 07/04/2017

Delivery Note Nr.

VEBARAN

Productos Calibrados de acero. Condiciones técnicas de suministro.

Bright steel products. Technical delivery conditions.

: WILLOW

QUALITY DEPARTMENT: Certify that the product fulfils the order specifications. DEPARTAMENTO DE CALIDADS: Certifica que el mencionado producto cumple con las especificaciones del podido.

Directors de Calidad Firmado: Susana Fernández

Seattern de nobres de nobres de 1200 d



SPECIFICATION CONTROL DRAWING

(23)

REFORMAT, ADD ASTM A108, ADD TOLERANCES NEW ISSUE DESCRIPTION 1 2012 -09-24 JU CP 12 00 05

DS 01.06 12

BY DATE

DE APPR.

12.09.05

1018-1025 ROUND BAR NT

SHEET 1 OF 1 SCALE NTS REV. B

CHECKED MFG. APPR. APPROVED

DRAWN DESIGN

S

DART AEROSPACE LID

HAWKESBURY, ONTARIO, CANADA

ORAWING NO.

M1018-R

SHEE

0

PART NUMBER: SPECIFICATION:

TOLERANCES:

EG. 7/8" ROUND BAR = M1018-R0.875

PER ASTM A108 AS FOLLOWS:

M1018-R D, DDD WHERE D DDD = DIAMETER IN INCHES

SIZE UPTO 1.5" NOCL OVER 1.5" TO 2.5" INCL OVER 2.5" TO 4.0" INCL OVER 4.0" TO 6.0" INCL OVER 6.0" TO 8.0" INCL

TOLERANCE +0.000/-0.002 +0.000/-0.003 +0.000/-0.004 +0.000/-0.005 +0.000/-0.006

PURCHASE MATERIAL: AIS (1018) 1025 ROUND BAR

MIL-S-7097 OR ASTM A108

MATERIAL RECEIPT INSPECTION FORM

		NED OLE BA:	SIC				INSPECTED BY:
F (if required)	SING SIGNOE	ENGINEER					OC 18 INSPECTION
		ล	he Quality Offic	ı uı pərezoi	SJAIS	əī	
			9,550 74,70.10 04	1			ARDNESS / DUROMETER READIN
							SIZE OF TEST SAMPLE
				†		1	TYPE OF MATERIAL
WEBSTER	DUR D	A AUG	HRB	НВС	1	l	
			NCTS BELOW				
	SS CHECK.	A HARDNE	1D PREFORM	A JAIRE	TAM	OE	CUT SAMPLE PIECE
					10		INO ITAL NO ITALIA
					(N)	\	DOES THIS REQUIRE AN EXTRUSION REPORT
					(N)	7	ENGINEERING SIGN OFF
					0		DOES THIS MATERIAL REQUIRE
					N	W	CORRECT M# ON THE MATERIAL
					N	A	SORRECT MATERIAL IDENTFICATION
			27h82	1:44	N	(X)	CORRECT REF # TO LINK CERT
			1		(N)	Y	рното кедиікер
				1 1 - 1 - 5	N	W	CORRECT THICKNESS
		* 10	89-4	WHI	N	R	CORRECT MATERIAL PER M-DRAWING
					N	(3)	CORRECT GRAIN DIRECTION
					N)	7	COKROSION
			11.00		N	(3)	CORRECT FINISH
			40		W	人	SURFACE DAMAGE
					1	1/1	
	S.	COMMENT				(CP	DESCRIPTION
		'L 8IZE BECEI/			<u> </u>	ON	QUANTITY REJECTED:
	1	KNESS BECEIV			-		QUANTITY RECEIVED: /5
n -		KNE22 DEDEH					MATERIAL CERT REC'D:
				-		8	DATE: J8(07/1)
10 (/ LI	10 10 J :: ON	HOTA8 \ O9			511	178	
eb05/hle	ON ON TON	110140700			100	10	1914 VV

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

:3TAQ

81/16/8/ :3TAD

Fax: (+34) 843 867 312 Tel: (+34) 848 867 311 moo,leonlevelnuewww oscatienass savisco Pol, Ind Besente S.N 20720 Aukolie (Gipuzkos)

CHABTAR COTD LINISHED



9242-ASt

moo.lecriteveunaliscricionem

Fax: (+34) 946 264 626

Td.: (+34) 946 251 712

CEKLILICYDO DE CYLIDAD

COLD ROLL SAB 1018 ACCORDING TO ASTM A108

Material: I ohnstanliss d

de acuerdo con la norma EN 10204 / 2,2; CERTIFICAMOS: Que el material suministrado con cargo a los pedidos de referencia y amparado por nuestro albaran N° EXM.773 corresponden a los análitais y fusiones aiguientes yfia.Nº FV17/286

animal a	esolnisoom	Caraci,		11 4		etį	in colne	ab asimino ndisi	Combos		1
% V	ansi Smm/M	SSI Symm\N	% 'd	%	. 18	Ma. %	% 'O	COLADA	CYTIDYD	MATERIAL	"N. Pedidos M"
12,00	00,082	00,688	910'0	Z00'0	-	17,0	61,0	171,108	-	8/£ X \$	68071-NIM
29,00	00'567	329,00	410'0	1100		94'0	91,0	644065		1/1 X.2	MN-47093
12,00	00'085	554,00	910'0	0,002		LLO	\$10	801141	V 13.11	8/£ X \$	EGOTH-NM
14,00	00,088	00,522	0,021	0,002	61'0:	54'0	L10	170723	g did alter - '	WE X 9	MN-47093
81'92	446,12	307,26	610,0	\$000	61'0'	6,73	91'0	- 4241FT	CAED	37 MEXT	11587-00
24,31	455,80	328,17	4100	\$00'0	'91'0	07,0	\$1.0	- 554171		MEXE	11681-00
26,57	453,88	09'610	610'0	\$000	61'0	07,0	. 51'0	-95+1Z1	8/2	1XE	On:48311
26,44	448,72	19'516	110,0	1100	81,0	18'0	91'0	1171428	1812	JULX P	11881-00
24,10	462,60	313,22	910'0	6000	61'0	6L'0	410	ppp141	1 76 - 5 1 - 5	7/1 X T	86081-LA9
24,91	92'951	325,45	410'0	800'0	0,24	08,0	61'0	171438	å " ± - ,	8/E X E	. 8608h-LA9
24,31	455,80	328,17	4100	0,005	91'0	04'0	\$1'0	171455	L 1.	₽/£ X €	PA1-48098
24,31	455,80	328,17	910'0	\$00°0	81'0	64'0	91'0	T10400	111	3X1-1XE	86084-1A9
13,00	00'945	00'055	810,0	400,0	070	28,0	91'0	171612	Light Control	2/1 X 9	. 3608b-1A9
14'00	00,282	00,722	610'0	5000	91'0	54'0	41'0	170932		110	8608FTV4
14,00	00,388	558,00	0,012	600,0	-91'0	64'0	81'0	162602		1/EX8	86081-1A9
32,70	00,184	348,00	1100	9£0'0	81,0	0,70	51'0	50872	**************************************	5 X 3/10	86186-AA
13,00	00'945	00'055	810,0	0'004	0,20	0,82	910	171612		7/1 X 9	87184.9AC

Cornfla (SPAIN), 11 de Soptiembre de 2.017

Responsable de Calidad

SPECIFICATION CONTROL DRAWING

O

SPECIFICATION:

MIL-S-7097 OR ASTM A108

PART NUMBER:

TOLERANCES:

EG. 7/8" ROUND BAR = M1018-R0.875

PER ASTM A108 AS FOLLOWS:

M1018-R D.DDD WHERE D.DDD = DIAMETER IN INCHES

SIZE UP TO 1.5" INCL OVER 1.5" TO 2.5" INCL OVER 2.5" TO 4.0" INCL OVER 4.0" TO 6.0" INCL OVER 6.0" TO 8.0" INCL

TOLERANCE +0.000/-0.002 +0.000/-0.003 +0.000/-0.004 +0.000/-0.005 +0.000/-0.006

PURCHASE MATERIAL: AIS 1018/1025 ROUND BAR

CHECKED MFG. APPR. DRAWN

M1018-R

SHEET 1 OF 1

DART AEROSPACE LID
HAWKESBURY, ONTARIO, CANADA

1018-1025 ROUND BAR

DESIGN

B REFORMAT ADD ASTM A108, ADD TOLERANCES
A NEW ISSUE

8 B C

APPROVED

12.09.05

MAO7 NOITO39RNI T91337AM

						51	IIDAAA AATAMONIID / 22AMOAA
							SIZE OF TEST SAMPLE
							JAIRATAM 90 B9Y
WEBSTER	a Ana	A AUG	HRB	HBC			
			ULTS BELOW				
	CHECK.	N A HARDNESS	ND PREFORM	Y JAIME	TAM	OF	CUT SAMPLE PIECE
4. 7. M							
					1		
					M	Y	EXTRUSION REPORT
					0		DOES THIS REQUIRE AN
					M	7	ENGINEERING SIGN OFF
					<u> </u>	0	DOES THIS MATERIAL REQUIRE
					N	(1)	CORRECT M# ON THE MATERIAL
			- 61 11	1 . 1 . 1 . 1	N	(A)	CORRECT REF # TO LINK CERT ORRECT MATERIAL IDENTFICATION
			93116	1. PVI	N	1	DHOLO BEGUINE CEBI
					(N)	8	CORRECT THICKNESS
			10/4/	1100	N	8	CORRECT MATERIAL PER M-DRAWING
			SUN V	VIN	N	8	CORRECT GRAIN DIRECTION
	*				N	1	CORROSION
					N	â	CORRECT FINISH
						-	SURFACE DAMAGE
					-	1/人	201110120112110
						V/ PYO)	DESCRIPTION
		COMMENTS				NC	Noitalaosaa
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	, 000) :0	NESS RECEIVE	THICK				QUANTITY RECEIVED:
	, on -/ :C	NESS ORDERE	THICK				MATERIAL CERT REC'D:
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		-	1350 11.1-10 1		
					HARDNESS / DUROMETER READING
					SIZE OF TEST SAMPLE
					JAIRETAM 40 E9YT
WEBSTER	DUR D	A AUG	HRB	HBC	
		/	NCTS BELOW	ECORD RESU	RI
	SS CHECK.	A HARDNES	1D PREFORM	1A JAIRETAN	COT SAMPLE PIECE OF N

testers located in the Quality Office

:BTAG	8\ \ \%\ :=TAQ
SIGNED OFF BY:	INSPECTED BY:
ENGINEERING SIGNOFF (if required)	OC 18 INSPECTION

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

496A

FEAL-18-15052

第四十四年四日四日

浙江永杰铝业有限公司

Jiangdong Industrial Area, Xiaoshan Economic and Technology Development Zone, Hangzhou, 311222, China Zhejiang Yongjie Aluminum Co., Ltd.

2116 LINWOOD AVENUE, FORT LEE, NEW JERSEY 07024, USA

TEL: 201.944.2200 X 123/ FAX:201.944.2226

EMPIRE RESOURCES, INC.

MILL TEST

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ALTO MANGE STOLD, SATTA

Involca No.: YJ170620-2 Date: JUNE 20, 2017

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522-5	522-4	522-3	522-2	522-1	621-7	521-6	521-6	521-4	521-3	521-2	521-1	520-8	620-7	520-6	520-5	520-4	620-3	620-2	520-1	519-7	519-6	618-6	e No.	Packag	SHIPPIN
R154139	R154069	R154069	R154260	R154260	R154276	R154276	R154276	R154284	R154284	R154284	R154284	R154278	R154276	R154276	R154276	R154286	R154286	R154286	R154177	R154271	R154271	R154267	PONO.		SHIPPING MARKS:N/M
017050674-1	2-178-2-2	1-174-2-1	, 117060371-2	117060374-2	017050674-2	017050823-4	017050823-3	017051081-2	017050981-1	017050981-2	017051192-2	7101705161-5	7101705161-4	7101705161-1	7101705161-2	017050934-1	017051311-1	017050974-2	017051163-2	017050964-3	017050964-4	217080011-2	neat Number		M
AA5052 H32	AA5052 H32	AA5052 H32	AA5052 H32	AA5052 H32	AA5052 H32	AA5052 H32	AA5052 H32	AA3003 H14	AA3003 H14	AA3003 H14	AA3003 H14	AA5052 H32	AA5052 H32	AA5052 H32	AA5052 H32	AA3003 H14	AA3003 H14	AA5052 H32	Alloy/ Temper						
0,190°X48"X96"	0.249"X60"XC	0.249"X60"XC	0.160"X57"XC	0.160"X57"XC	0.190"X48"X96"	0,190"X48"X96"	0.190"X48"X96"	0.050"X60"XC	0.050"X60"XC	0.050"X60"XC	0.050"X48"XC	0.125"X48"X96"	0.125"X48"X96"	0.125"X48"X96"	0.125"X48"X96"	0.040"X60"XC	0.050"X48"XC	0.050"X80"XC	0.036"X48"XC	0.125"X60"X144"	AA3003 H14 0,126"X60"X144"	0.125"X60"X144"	Specification		
0.190	0.249	0.248	0.159	0.159	D, 190	0.189	0.189	0.050	0.050	0.050	0.050	0.124	0.124	0.124	0.124	0.039	0.049	0.050	0.035	0.124	0.124	0.125	ess	Actual	
2,110	4.135	4.317	4.314	4.362	2.160	2.165	2.082	4.590	4.560	4.674	4,656	1.665	1.760	1.789	1.766	4,645	4,652	4.480	4.636	2.114	2.111	2.166	(TW)	N.	The state of the s
2.168	4.172	4.352	4.354	4.400	2,208	2.228	2.136	4,664	4.634	4.750	4,714	1.732	1.830	1.848	1.830	4.712	4.718	4.584	4.710	2.214	2.210	2.264	B	G.¥	-
0.150	0.060	0.050	.0,130	0.130	0.150	0.140	0.140	0.230	0.210	0.210	0.220	0.100	0.100	0.100	0,100	0.240	0.200	0.190	0.240	0.200	0.200	0.100	8		
0.220	0.220	0.260	0.280	0.280	0.220	0.220	0.220	0.540	0.560	0.560	0.540	0,300	0.300	0.300	0.300	0.550	0.540	0.520	0.520	0.540	0.640	0.290	arti arti		
0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.070	0.080	0.080	0.090	0.010	0.010	0.010	0.010	0.100	0.090	0.080	0.070	0.080	0.080	0.010	Cu		
0.040	0.010	0.010	0.080	0.080	0.040	0.030	0.030	1.070	1.060	1.060	1.080	0.010	0.010	0.010	0.010	1.080	1.060	1.050	1.040	1.040	1.040	0.070	Min	CHEM	
2.420	2.430	2.500	2,520	2.520	2.420	2.390	2,390	0.010	0.010	0.010	0.010	2.490	2.490	2,490	2,490	0.020	0.010	0.010	0.010	0.010	0.010	2.460	Mg	CAL CO	
1	ı	1	1	i	1	Ja	ı	1	1	ŧ	-1	1			3	1	.1	ļ	1,	-	1	4	≅.	CAL COMPOSITION,%	
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0,012	0.020	0.020	0.013	0.013	0.012	0.011	0.011	0.032	0.024	0.024	0.030	0.010	0.010	0.010	0.010	0.027	0.034	0.030	0.030	0.024	0.024	0.011	1		***************************************
0.180	0.200	0.210	0,170	0.170	0.180	0.170	0.170	1	:	1.	1	0.210	0.210	0.210	0.210	t		ı	;	1	ı	0.170	ç		
96.96	97.05	96,94	98,73	96.73	96.96	97.02	97.02	98.04	98.05	98,05	98.03	96.86	36.86	96.88	96,86	97.98	98.06	98.12	98.09	98.10	.98,10	96,82	2	i	
31.6	34.1	34.4	33.6	32.8	31.6	31.6	31.6	.21.6	22.2	22.2	22.2	33.2	33.2	33.2	33.2	22.2	22.9	21.9	22.2	22.2	22.2	32.6	(KSI)	PR	
24.4	23.8	24.2	23.9	23.9	24.4	24:1	24.1	19.8	18.3	19.3	18.1	24.7	24.7	24.7	24.7	18.7	20.3	20.7	19.9	19.0	19.0	24.9	(KSI)	PROPERTIES	
11.0	15.0	16.0	15.0	15.5	11.0	13.0	13.0	6.0	0.0	6.0	5.0	10.5	10.5	10.5	10.5	4.5	6.5	5.0	5.0	13.5	13.5	10.5	Yield Elongat (KSI) ion (%)	ES.	

MATERIAL CONFORMS FOR ALLOY 5052, H32 ALUMINUM ASSOCIATION STANDARDS (ASTM BZD) 10, AMS-QQ-A-250/88 AND AMS-4018L AND MATERIAL IN ALLOY 3003, H14 CONFORMS TO ALUMINUM ASSOCIATION STANDARDS, ASTM B209-10, AMS-QQ-A-250/2 AND AMS 4008K, COUNTRY OF MELT AND MANUFACTURE IN CHINA.

SPECIFICATION CONTROL DRAWING

PART NUMBER: SPECIFICATION: PURCHASE MATERIAL 5052-H32 ALUMINUM SHEET WHERE "XXX" = SHEET THICKNESS (IN INCHES) M5052H32S XXX QQ-A-250/8 OR AMS-QQ-A-250/8 OR AMS 4016 OR ASTM 8209 EG. 0.063" THICK SHEET = M5052H32.063

O

XXX BY 4FT BY 8FT

PREFERRED SIZE:

 B
 REFORMAT DWG, ADD 8208 SPEC (ZN D8-1), PAR 08-020A
 CP
 09-09-26

 A
 NEW ISSUE
 DS
 01-06-08
 TITLE
5052-H32 SHEET SPEC
COPPRIGHT 2001 BY DART AFROIDAGE TO M5052H32S DART AEROSPACE LID
HAWKESBURY ONTARIO CANADA ΥВ SHEET 1 OF 1 SCALE NIS REV. B

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DATE O

09.09.26

APPROVED

DESIGN
DRAWN
CHECKED
MFG. APPR.

REV.

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F (if required)	ING SIGNOF	ENCINEER					QC 18 INSPECTION
		ē:	the Quality Offic	ni bətsəol	SĮGLZ	.91	
						1C	HARDNESS / DUROMETER READIN
						1	SIZE OF TEST SAMPLE
]	JAIAETAM 90 E9YT
WEBSTER	DUR D	A AUG	HRB	HBC			
			ULTS BELOV				
	SS CHECK.	SANDAAH A N	ND PREFORI	A JAIA3	TAM	E OF	CUT SAMPLE PIECE
					N	Y	EXTRUSION REPORT
						^	DOES THIS REQUIRE AN
					W	人	ENGINEERING SIGN OFF
					"		DOES THIS MATERIAL REQUIRE
					N	(V)	CORRECT M# ON THE MATERIAL
					N		CORRECT MATERIAL IDENTFICATION
		h-	191501101	1-1/1	N	M	CORRECT REF # TO LINK CERT
	214				(V)	X	PHOTO REQUIRED
			1, cf 41	OCH	N	(1)	CORRECT MATERIAL PER M-DRAWING
			547	WLIV	N	(X)	CORRECT GRAIN DIRECTION
					N	X	CORROSION
					N		CORRECT FINISH
		W.C. 110 (100 (100 (100 (100 (100 (100 (100			N	X	SURFACE DAMAGE
					(/	<i>V</i> //	
	S.	COMMENT				(CVE	DESCRIPTION
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	10	T SIZE RECEIV					
	18 x 1 :038	Hadro asir T	SHEE				QUANTITY INSPECTED: 324
,	, ST/70 :03/	KNESS BECEIV	THIC				QUANTITY RECEIVED: 3254
),/-	() (17) (3)	KNE22 OBDEE	THIC	15			MATERIAL CERT REC'D:
**							/*
					-	Q	DATE: [1/67/]
Ubrbes/AL	501 001 "001	I II O I VO I			71-1	78 W.	MATERIAL: MS05
24 /500 1917	Canand . ON	I UNTAR L DA		المر	1	ilri	() V INIGHT VII
	MS	TION FOI	T INSPEC	ECEID.	BI.	JAI	A 3TAM

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

:3TAQ

SIGNED OLE BA:

81/15/8) :3TAQ

INSPECTED BY:

,	TOTAL PROPERTY OF THE PROPERTY	A STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN T							
	ossession of Eaton Steel.	above to be in conformance, and a true copy of data represented in company records. This steel was not subject to weld repair or exposed to mercury white in the possession of Eaton Steel	subject to weld repair	ds. This steel was not	any record	sata represented in comp	, and a true copy of	y tho	We hereby certify the
1/21/2013	Steel's Quality Manual QM-00002 Rev 0 dated 11/21/2013	tooordance with Eaton Steel's Quality Manu	tity. Material produced in a	uct description and quan	imber, prod	sber where applicable, part nu	reat, purchase order nur	Bundle tage with Eaton Steel identifiers reference the steel grade, heat, purchase order number where applicable, part number, product description and quantity. Material produced in accordance with Eaton	Bundle tags with Eaton
					HRC	38	ond	32/16 inch from Quenched End	
					HRC	40	hd	28/16 inch from Quenched End	J26
					няс	43	nd	24/16 inch from Quenched End	324
					HRC		ad	22/16 inch from Quenched End	J22
					HRC	45	nd	20/16 inch from Quenched End	J20
					HRC	45	ind	18/16 inch from Quenched End	J18
					HRC	46	prd	16/16 inch from Quenched End	37.6
					НЯС	A B	'nd	14/16 inch from Quenched End	J14
					HAC	50	nd	12/16 inch from Quenched End	J12
					няс		and	11/16 inch from Quenched End	III
					няс	52	nd	10/16 inch from Quenched End	J10
					няс	54	ă.	9/16 inch from Quenched End	J9
					HRC	55	id	8/16 inch from Quenched End	JA
	and Participation of the Control of				HRC	57	M.	7/16 inch from Quenched End	J7
	20£c	Sarlosse		022-2171335	HRC	57	М	6/16 inch from Quenched End	36
	Length	Oty Units		Tag Number	#30	57	<u>ಹ</u>	5/16 inch from Quenched End	J5
	.W.T.	Ostructure	Reported Microstructure	MICROSTRUCTURE	HRC	57	ď	4/16 inch from Quenched End	J.≱
TOG	90 - 100	Percent Tempered Martensits	Percent Tempe	PERCENT IM	HRC	57	ıd	3/16 inch from Quenched End	J3
Units	. Value		Description	Siructure	HRC	57	id	2/16 inch from Quenched End	J2
	SWNOANCO	ile and Yield properties	ASTMA BC Tensile	A434-90a-BC	HRC	57	p	1/16 inch from Quanched End	31
-	COMPORMS		Grade 87	A193/193M-01	Units	Value		Description	J oπiny
Units	Value		Description	ASTM Standard	NI	0.7420 - 0.7580		Diameter	DIAMETER
RED	\$1.50	110	Reduction Ratio	RED RATIO	Units	Value			Geometry
-	ASD.	mtxy	Rolled in Country	ANIMONO CONTRA			,	Report macro etch results.	MACRO ETCH
-	ASO	mtry	Meited in Country	MELT COUNTRY	Units	Value	China and the Committee of the Committee	Description	Cleanliness
Units	Value	*	Description	Pare of the last	z z	5.37.00	AND THE REAL PROPERTY OF THE PERSON OF THE P	Admai Diampter	DI .
_	CONFORMS	200	Quench & Temper	HT4140-42QT	PWGT	0.03200		Elament Sum Limit	P+S
	CERTIFIED	rao	Cert stress free	STRESS FREE	PWGT	0.0000		Nitrogen	z
	O/N%d	Requirements	Quench Media Requirements	VICENCH MEDIA	PMGT	0.00200		Columbium	9
	Report	rature	Time at Temperature	TIME AT TEMP	PWGT	0.00200		Vanadium	V
GN.	0 - 20	Gauss	Magnetism in Gauss	TH-MSITTEMENM	PWCT	0.21000		Copper	Cu
DEGF	500 - 2500	Temp in Fahrenheit	Stream Relief Temp in	SE TEMP P	PWGT	0.04900		Aluminum	Al
DEGP	1600 - 1700	Austenitize Temp in Fahrenheit	Austenitize T	AUSTEN TEMP F	PSGT	0.18000		Wolybdenum	360
FORG	500 - 2500	n Fahrenheit	Temper Temp in Pahrenheit	TEMPER TEMP P	PWGT	1.00000	7	Chromium	Cr
Units	Value		Description	Heat Treating	PWGT	0.09000		Mickel	Z.
RHB	286.0	10e	Brinell Surface	BRINELL SURF	PWGT	0.26000		Silicon	Si
PCT		rtion in Area	Percent Reduction	REDUCTION	PWGT	0.02000		Sulfur	
PCT		jation	Percent Elongation	RICHTANOLE	PWGT	0.01200		Phosphorus	P
ISd		Yield Strength in PSI Units	Yield Strengt	ISG CIRIY	PMGT	0.85000		Manganese	Men
ISG		Tensile Strength in PSI Units	Tensile Stren	TENSILE PSI	PMGT	0.41000		Carbon	
Units	Value	92.	Eaton Steel Job 8085	are completed from)E and wo	ed by GERDAU-MONRO	m Heat M52574 issu	All bundles listed below were produced using steel from Heat M52574 issued by GERDAU-MONROE and were completed from Eaton Steel Job 808652. Charles I Section Commission Commis	Ill bundles listed be
	SBQ OTSF FG MST	3/4 HR RD 4140/42MM 20H2in SBQ OTSF FG MST	9/16-R40C		11144 rev 003	B39362	2 09-Jan-2018	223252	
-	As a manuscriptor or manifest for the foreign with the same and a first contract of the same of the sa	Item Description	Customer item	2	itom	Customer PO	Ship Date	HOL.	Customer
	The state of the s				The second second				



GERDAU SPECIAL STEEL NORTH AMERICA 5591 MORRILL ROAD JACKSON, MICHIGAN 49201

142324 DAN MCNAUGHTON EATON STEEL CORPORATION CERTIFIED HATERIAL TEST REPORT

CUTTOMS AND ENGINE

1012462/4140EFVD

MS2574 W52574 283416 102 11/05/13
Daniel Cast 8MCF 19

EATON STEEL CORPORATION % VULCAN HEAT TREATING 10 CROSSCREEK TRAIL

PELHAM , AL 35124

OAK PARK , MI 48237 10221 CAPITAL

with specified requirements. Wandy J. Craig	γ. redi	Citie	With spe	mpliance	ot and in co	e data are corre	We certify that these data are correct and in compliance with specified requirements.
					Andrean Control of the Control of th	Annua (Annua	T. BYA
						. 0	RATIO= 81.5 TO
				10	TEM 101246	SPECIFICATION ITEM 1012462	REDUCTION RATIO
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					AT 180024	SPECIFICATION CAT 180024	DI CALCULATION
30 32 34 38	26 28 40	4 N W 44	18 20 22 45 45	15 16	1 12 13 14	6 7 8 9 10 11 7 57 55 54 52	THEORETICAL 31 2 3 4 5 6 57 57 57 57 57 57
				304	STM A255/A	SPECIFICATION ASTM A255/A304	HARDENABILITY
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			-07	2; A322	A29/A29M-1	prp 03/05/12;	ITEM 1012462 REV 1 DTD 03/05/12; A29/A29M-12; A322-07
	H (20'	a	RND	0 3/4"	4140
Canada de la constanta de la canada de la ca	-	-		-			

Monroe, MI 48161 CONTINUED ON PAGE 2

GERDAU SPECIAL STEEL NORTH AVERICA 5591 HORRILL ROAD JACKSON, RICHIGAN 49201

142324 DAN MCNAUGHTON
EATON STEEL CORPORATION OAK PARK , MI 48237 10221 CAPITAL 1012462/4140EFVD CERTIFIED MATERIAL TEST REPORT EATON STEEL CORPORATION & VULCAN HEAT TREATING 10 CROSSCREEK TRAIL PELHAM , AL 35124 M52574 21 SATUR TO 283416 102 11/05/13

ASTM E381 MACRO ETCH SATISFACTORY: \$1/R1/C1; MEETS SAE J422
\$55/05 RATING (WORST FIELD);

** MATERIAL 100% MELTED AND MANUFACTURED IN THE U.S.A. BY THE ELECTRIC ARC FURNACE AND CONTINUOUS CASTING METHOD. THE PRODUCT HAS NOT BEEN REPAIRED BY WELDING AND THIS MATERIAL HAS NOT BEEN EXPOSED TO MERCURY OR TO ANY OTHER METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURES DURING PROCESSING OR WHILE IN OUR POSSESSION.

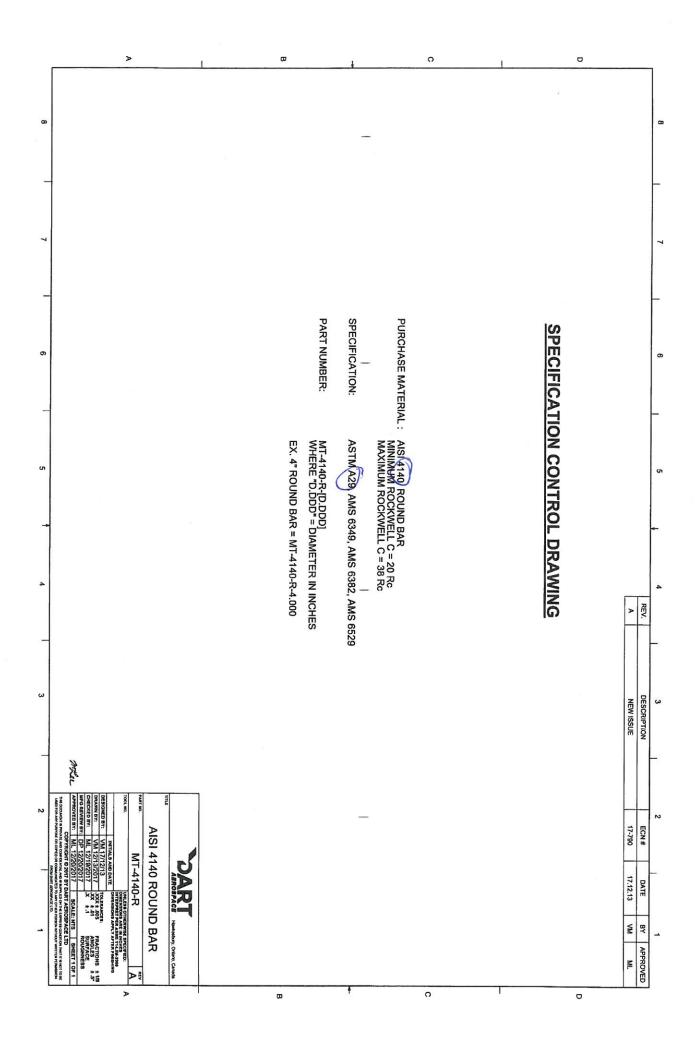
GERDAU MONITORS ALL INCOMING SCRAP AND ALL HEATS OF STREEL TO ENSURE THAT PRODUCTS SHIPPED ARE FREE OF RADIOACTIVE MATERIAL. Monroe, MI 48161 RESIDUAL MIN RESIDUAL MAX Gerdau Monroe P+S = 0.0320 P+S = 0.0320 TTEM 1012462 REV 1 DTD 03/05/12; A29/A29M-12; A322-07 PAGE 2 OF 2 SPECIFICATION ITEM 1012462 SPECIFICATION ITEM 1012462 3/4" \$154 ORDERED RND White Can Wendy J. Cralg

Gratte vestrance genteenstattes

Phas Online 12/7/13 9:43 AM vuic dohm Pege 1 of 2	Plaz Onkre \$2/773	specifications	Austentiting temp. >1700 degrees F. Tast speciment recet the ASTM A370-12a specifications
		resterial Melied and Manufactured in the USA. Induction heat Treated Voluction heat Treated Average Causa Realistig: < 15 The microstructure occasions of 100% tempered manufacture from the surface to the center.	material Meited and Manufactured in the USA includion Heat Troated Average Gauss Reading: <16 The microstructure consisted of 100% lempers
en and Manual Rev. A, dated used in the production of this	ucts inc. Quality Assurance Progn rened on the material. No Mercury	Material was manufactured, tasted and inspected in accordance with Vulcen Tirpsecked Products the Quality Assurance Program and Manufalikari. A dated \$2,241 - Processed material is Quanched and Temperard - Streas Fines No wed repair performed on the statistics. No Manctury used in the production of this	Material was manufactured, tested and in 8/23/11. Processed material is Quenched
		Notes	
are 6 Merse R Messe C Grain	THE PASSET OF TH	6 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	WETTE UIT CARD DES GETT BOOK DE
	\$	Certified Chemical Analysis	
			See following pages for leats
		Test Results	
TOTAL CONTROL OF A B. MAKANDAR CONTROL OF THE BAR	And the second s	Forebest Assess	Customer Specification
Amend Option	2012a	ASTM A193 B7/ASME SA193 B7	Type ASTM A193 E
The second of the second of the second of		Applicable Specifications	
4140 -	Alloy - Temper: 4140 -		Piece Weight: 30.059
4100	Alloy Type: 4100		Part Group: HTTOLL
Hot Roll Bars	Name:	0.750x240 O&T ES	Part No: HRB 4140 .750x240 Q&T ES
		Part information	
		53733	Note: WO-153733
	Line No: 1		Order No: 201403
24919 85%	Shipped City: 24919 by	53733	Customer PO No: 143438-753733
		001	Customer Part No: 1012463-001
20601 Trotley Industrial Drive Taylor, MI 48160	Ship To: Orive	el Corporation	Customer: Ealon Steel Corporation
Total Control		Containers: S7520422 S7526364 S7526926	Containers: S75204:
12/7/13	Certified Date: 12/7/13	Job Information	Job No: 344313
RTIFICATION	JOB MATERIAL CERTIFICATION	Vulcain Threaded Products 10 Citass Cinek Trail Pohlom, AL 30124 Tel (205) 620-5150 Fax (205) 620-5150	THE ACC PRODUCTS, NO. Fax (2)

cert 377068

Data	vis - Supervisor	Chmielanski, David - Supervisor						
12/7/13	Commission of	Ware Phraidowly						
- Contract	87.0	43.50		3,312	de caracterante and a second	O Nessofts	CONTRACTOR OF STATE O	0.00
Note	Quanch Water Terry (F)	Ruft Speed (Firmin)	70415	Tempering Years (F)	Temper	edption	Casedpulpa	
					nation (Lbs)	L Temper Inform	Fest No. 25759 Test: Quench & Temper Information (Lbs)	Test No 2
	8	8	8	6	8.73	136,000	Ratura 142,500	Phys. 1873 Results
Note	Madradhan Surface Cowar Hardonsa Hardonsa (HEC) Hardonsa (HEC)	Madredhia Hardness (HRC) Has	NOA (%)	Offset (pel) (%) Length	Elengation (%)	Offset (pel)	rdion Tensita (pai)	Desertotion
	The second secon		***************************************		calla (Lbs)	Temper Physi	Test No. 25760 Test: Quench & Temper Physicals (Lbs.)	est No 2
			Test Results	Test				
				7526926	7526364 S	57520422 S7	Containers: \$7520422 \$7526364 \$7526926	
	Certified Date: 12/7/13		Job information	Job In		344313	Job No: 344313	
TION	JOB MATERIAL CERTIFICATION	OB MATER	٦	16	Vulcan Threaded Products 10 Cross Creek Trail Petham, AL 35124 Petham, AL 35124 Tel (205) 620-5150 Fax (205) 820-5150	Vulcan Threaded Pro 10 Cross Creak Trail Pelham, AL 35124 Tel (205) 620-5190 Fax (205) 820-5150	THEADED PRODUCTS, INC.	HAGE.



MATERIAL RECEIPT INSPECTION FORM

		ED OFF BY:	NOIS				INSPECTED BY:
(if required)	ING SIGNOF	ENGINEER					OC 18 INSPECTION
			the Quality Office	ni bətsəol	SIBIS	<u> </u>	
						1C	ARDNESS / DUROMETER READI
							SIZE OF TEST SAMPLE
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					M	Ι λ	DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF
					N	Q	CORRECT M# ON THE MATERIAL
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					N		CORRECT THICKNESS
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		277			N	(3)	CORRECT GRAIN DIRECTION
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108205/1280	07001 ::ON	PO / BATCH I	05607	96	-10		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

:3TAQ

DATE: (8/57/18

ナルーコナ.



PAGE 81/90/20 STAG H184359 Rev CERTIFICATE

9

CERTIFICATION

2671-75534 MI bnommeH

ASADAIN AGARA 1412 160th Street No.11 A ROUT Street NO.11 A ROUT Street

РОВСИВЕ ОВОЕМ ВЗЭЗЭЛ

б-66103€ язояо

TTEM 142250240Q04A

CUSTOMERITEM VO12162

bnuoЯ зчанг

OPINTO BOARD

SIZE WW EZ. 1500 MM

size 2.2500

LENGTH MM 6096 / 7315.2

LENGTH 20' 0" / 24' 0"

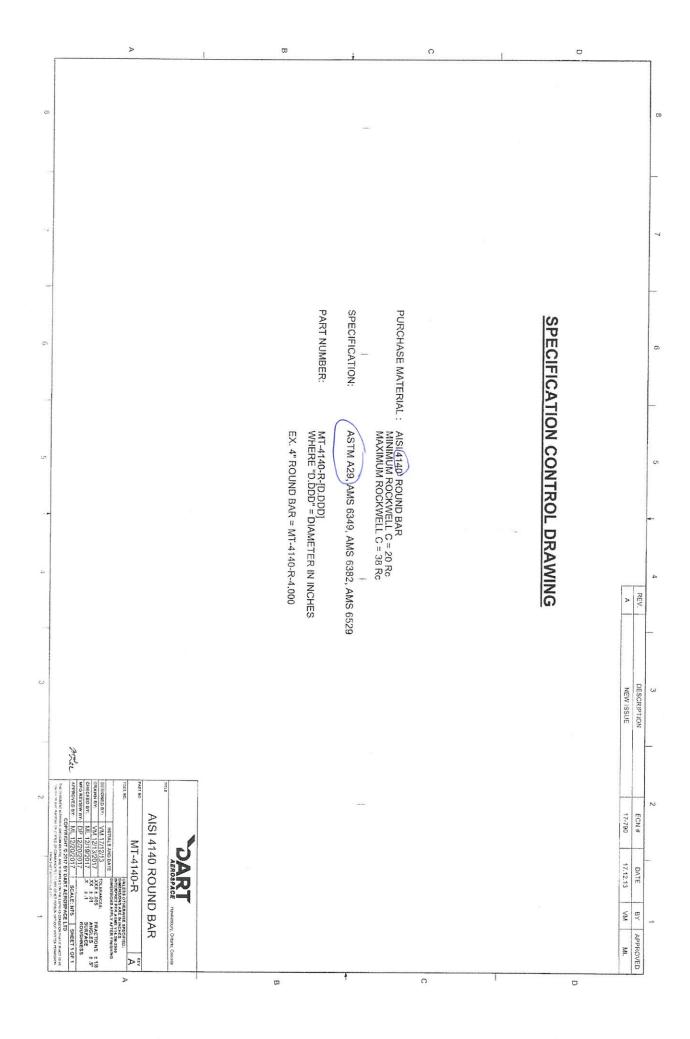
440042 CAIAL-TRT QT-HR-STRESS FREE 126K TS 105K YS (,02% 100K) 16% EL 50% RIA SUBFACE HBN 269/321 SpeciRev: ASTM SAM-16 SpeciRev: ASTM ASJA-06(2012) CL-BC SpeciRev: ASTM ASJA-06(2012) CL-BC SpeciRev: ASTM ASJA-06(2012)

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pı	T	OITAN NO	REDUCTI	157	ro		MELTED	2ONECE			PRACTICE	MIANO	TABH

WE, hereby certify that these goods were produced in compliance with all applicable requirements of sections 6, 7, and 12 of the Fair Labor Standards Act, as amenced, and all regulations and orders of the United States Department of Labor issued under section 14 thereof. Material was not exposed to mercury or any metal alloy that is liquid at ambient temerature during processing or while in our possession. No weld repairs performed on the above material.

Walter P. Kretzler - Director of Q.A./Chief Metallurgist

CERTIFICATE OF TEST



MATERIAL RECEIPT INSPECTION FORM

				DOES THIS MATERIAL REQUIRE
		N	A	CORRECT M# ON THE MATERIAL
	a la la part	N	N	ORRECT MATERIAL IDENTFICATION
LOBALLY :)	H	N	(1)	CORRECT REF # TO LINK CERT
		N	人	РНОТО ВЕДИІВЕР
		N	(A)	CORRECT THICKNESS
set wh	11	N	(1)	CORRECT MATERIAL PER M-DRAWING
		N	(1)	CORRECT GRAIN DIRECTION
		M	人	COKROSION
		И		CORRECT FINISH
		(N)	X	SURFACE DAMAGE
COMMENTS		эск	NA (CP) NC	DESCRIPTION
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					☐ DUROMETER READING	
					SIZE OF TEST SAMPLE	
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HRC HRB DUR D WEBSTER						
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	SS CHECK.	N A HARDNE	ND PREFORI	A JAIABTAN	CUT SAMPLE PIECE OF I	

testers located in the Quality Office

: ETAD	81/50/8) :3TAG
SIGNED OFF BY:	INSPECTED BY:
ENGINEERING SIGNOFF (if required)	QC 18 INSPECTION

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

DOES THIS REQUIRE AN EXTRUSION REPORT

JACIT

mussat

STEEL

98703

ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4 PU 560

SO No., Item & Date.: 8056889 000010 2017/10/04	Shipment No.& Date.: 1000262272 2017/11/16	TC No., Date & Time:	ESA-442293 2017/11/18 - 00:59:38
Sold to Customer Name and Address :	Ship to Customer Name and Address:	Customer PO NO./Item:	OU-48322 / 1
LES ACIER TRANSBEC (1997) LTEE	LES ACIER TRANSBEC (1997)L'TEE	BOL NO.:	1000262272
TO SEE SEE SEE SEE SEE SEE SEE SEE SEE SE	CONTRACTOR OF THE	COSL.F BILLIPO	10 × 30 × 640
LAVAL, Quebec, Canada	ST JEROME,Quebec,Canada	Carrier:	GBS & SONS TRUCKING LTD 413 REV 1050
H7L 5R2	J7Y 486		
Customer Specification: HR STEEL PLATE HSLA CSA G40.21 44W 13) As Rolled Std Thickness Tol Structural Steel Top and Bottom Standard Surface Flatness 1/2 A6 Fine Grain Fully Killed	1 44W 113) As Rolled Std Thickness Tol Structural Steel Top :	and Bottom Standard Surface	Flatness 1/2 A6 Fine Grain Fully Killed

Insp T/R: Test Report As Per Spec Supplementary Instructions: Test Cert 1:parcand@aciertransbec.com Test Cert 2: nathalie.legault@aciertransbec.com Cust Use: STRUCTURAL STEEL

ESSAR STREL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE COMPANY'S STANDARD RECORD KEEPING PRACTICES.

THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMAING IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL 1705/945-4026 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT. THIS TEST REPORT HAS BEEN GENERATED BY A COMPUTERIZED SYSTEM AND IS VALID WITHOUT A PHYSICAL SIGNATURE.

ALL HEATS FULLY KILLED.

HEATS INDICATED WITH (1) FINE GRAINED MEETS EN 19204-2004 TYPE 3.1
ISO QUALITY AND ENVIRONMENTAL CERTIFICATES AVAILABLE AT WAVE ALGOMA.COM

	AND DESCRIPTIONS OF THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON				***************************************							Complete Contract of the contr	THE RESERVE THE PROPERTY OF TH					
Dimer	Dimensions (T x W x L)	(L)	B	Batch No.	Неа	Heat No-MS		Quantity		PG of	0	Dimensions (T x W x L)	×W×L)	_	Batch No.	Heat No-MS	Quantity	No. o
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			* * *			******	* * * * * * *	НЭ	EMICAL	34064	871ES	SHEWICAL PROPERTIES		*******		7 3 3 4 4	***************************************	l
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KASHIF REHMAN

MANAGER METALLURGICAL SERVICES

"WARNING" DICH STREES ME VALUES REPREDICERENCE ORV HAS REDICEASED CONTROL HE ALE RECOUNTED THE MEMORIAL OF O DICHO THE BREIT MED AND THE STREET HE STREET HE ACTIVATED THE ACTIVATED ACTIVATED THE ACTIVATED ACT

0 D EXAMPLE: PART NUMBER: SPECIFICATION: PURCHASE MATERIAL: SPECIFICATION CONTROL DRAWING MT-HRS-P-[T.TTT] ASTM A36 OR ASTM A1011 OR 44W OR ASTM A1018 HOT ROLLED STEEL PLATE MT-HRS-P-0.750 TOLERANCES PER MANUFACTURER SPECIFICATIONS WHERE T.TTT IS PLATE THICKNESS IN INCHES REV. 8 REMOVED LENGTH AND WIDTH DIMENSIONS DESCRIPTION THE PROPERTY OF THE PROPERTY O HOT ROLLED STEEL PLATE COPYRIGHT © 2017 BY DART ALROSPACE LTD

BRY CHANGE SHOULD BE COPY BY COMMUNICATION OF RESPECTATION OF RESPE ECN# DART DATE BY APPROVED 26/09/2017 SAC WM

						10	ARDNESS / DUROMETER READIN
							SIZE OF TEST SAMPLE
							JAIRE OF MATERIAL
MEBSTER	a Aua	A AUG	HKB	ЯКС			
			ULTS BELOW				
	SS CHECK.	SANDAAH A N	1D PREFORI	IA JAIRE	TAM	OF	CUT SAMPLE PIECE
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					N	人	EXTRUSION REPORT
							DOES THIS REQUIRE AN
					M	人	ENGINEERING SIGN OFF
							DOES THIS MATERIAL REQUIRE
					N	W	CORRECT M# ON THE MATERIAL
				-	N	(1)	NOITACITUDE IDENTFICATION
			MOLIC	C M	N	(1)	CORRECT REF # TO LINK CERT
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					N	(2)	CORRECT THICKNESS
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	·				(M)	人	SURFACE DAMAGE
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57	3ED: (2-3)	KNESS OBDEE	SIHI				MATERIAL CERT REC'D: 1
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					HARDNESS / DUROMETER READING
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	SS CHECK.	N A HARDNES	ND PREFORI	IA JAIRETAN	CUT SAMPLE PIECE OF N

testers located in the Quality Office

:3TAQ	81/5/8) := TAG
SIGNED OFF BY:	INSPECTED BY:
ENGINEERING SIGNOFF (if required)	QC 18 INSPECTION

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



Material Test Report.

Manifest: 337833

Tickett

5910655

Cust P.O.: C75638

Our Order: 444849 - 2

Part: V138822

Die: E202128

Description: 1.375

Alloy Tenper: 6061 T6511

Print Date: 3/28/18

E159418

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		-					
6.11	\$0.2£	40.26	31/87/8	IIA	95168	959064	
Elongation	Yield Yield	<u>Ultimate</u> Tensile	<u>Test</u> <u>Date</u>	#10.1	Cast#	<u>Sample</u> <u>(II</u>	
		rength ksi	S				
		sal Properties	Mechani				

A8/002A-QQ-2MA)

Applicable Specifications: ASTMB221-14

Country of Origin: ONTARIO, CANADA

agreed upon specifications provided written notification is received by Can Art within 30 days from the date of shipment. incurred during the customer's manufacture and sale of its products, and is subject only to the replacement of any materials not within Aluminum Association and agreed upon customer specifications. Can An assumes no liability for additional costs which may be Can Art Aluminum Extrusion Inc. certifies that materials shipped under this order have been inspected and tested in accordance with

Evan Eng, Quality Assurance Manager

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL (6061) T6/T651/T6510 (18511) 762 ALUMINUM ROUND BAR SPECIFICATION: QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116) OR QQ-A-200/8 OR AMS QQ-A-200/8 OR AMS 4160) OR ASTM B211 OR ASTM B221

8

PART NUMBER:

M6061T6R|D.DDD| |DIA. |

O

WHERE "D.DDD" = DIAMETER IN INCHES

EG. 5/8" ROUND BAR = M6061T6R0.625

MFG. APPR.
APPROVED
DE APPR
DATE 09

6061-T6 ROUND BAR

09.07.13

DESIGN DRAWN CHECKED REV.

B REFORMAT OWG, ADD B211& B221 SPEC (ZN D8-1),
A NEW ISSUE

DESCRIPTION

REV. B

HAVINESBURY, ONTARIO CANADA
DRAWING NO.
SH

SHEET 1 OF 1

DART AEROSPACE LTD

ΥВ SC Ç

 \cap

O

MACERIAL RECEIPT INSPECTION FORM

	0	Y	DOES THIS REQUIRE AN EXTRUSION REPORT
	N	٨	DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF
	N	W	CORRECT M# ON THE MATERIAL
	N	W	ORRECT MATERIAL IDENTFICATION
25195:71	N	(1)	CORRECT REF # TO LINK CERT
	(1)	人	PHOTO REQUIRED
	N	A	CORRECT THICKNESS
8/00et-00-5WH	N	风	CORRECT MATERIAL PER M-DRAWING
	N	13	CORRECT GRAIN DIRECTION
,	N	Y	СОВВОВІОИ
	N	B	CORRECT FINISH
	(N)	人	SURFACE DAMAGE
	(1	<i>V</i> //	
COMMENTS	0.000	(CVE	DESCRIPTION
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THICKNESS ORDERED: SHEET SIZE RECEIVED: THICKNESS RECEIVED: SHEET SIZE RECEIVED: SHEET SIZE RECEIVED:			MATERIAL CERT REC'D: 2
	શ્રદ્	,,	MEDEL: MEDEL TAINETAM

	2				HARDNESS / DUROMETER READING
					SIZE OF TEST SAMPLE
					JAIRETAM 40 B9YT
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	SS CHECK.	A HARDNES	1D PREFORM	1A JAIRETAN	CUT SAMPLE PIECE OF I

testers located in the Quality Office

:ЭTAQ	8 1/10/8/ :3TAG
SIGNED OFF BY:	INSPECTED BY:
ENGINEERING SIGNOFF (if required)	QC 18 INSPECTION

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

heat: 13080470 4/6 # 5/6 # 6/

1688A

Customer	Customer BOL Ship Date Customer PO Item	Ship Date	Customer PO	Hem		Customer Item	Item Description	
The second of th	225539		DAYSTO	ORRE SAU		**************************************	The state of the s	
	66677	19-7-60-2018	840059	8056 ray 008	108	013733	4 HR RD 41401KR 21/24tt SBQ QTSF VD Ca-AI-FG MST	30 OTSF
bundles listed below	All bundles listed below were produced using steel from Heat 12060470 Issued by GERDAU-BRAZIL and were completed from Eaton Sixel Job 823764	n Heat 12080470 k	ISUND BY GERDAU-BRA	ZIL and w	re completed from E	Eaton Steel Job 823764		
Chemistry	Description	The state of the s	Value	Units	Jaminy	Description		Value
	Kanganas	The state of the s	0.41000	TORG	J30	30/16 inch from Quenci	Quenched End	42
7	Phosphorus		0.94000	PWGT	J32	32/16 inch from Quench	Quenched and	42
8	Sulfur		0.01400	PWGT	TENSILE PSI	Tensile Strength in po	h in PST Units	Value
S	Silicon		0,29000	PWGI	15d CTRIA	Yield Strength in PSI		134400
N	Nickel		0.09000	PMGT	ROLLADAOTE	Percent Elongation		19.00
0	Chromium		1.04000	PHGT	REDUCTION	Percent Reducti	Reduction in Area	55.0
*	Molybdenum		0.24000	PWGT	BRINELL SURF			313.0
>	Aluminum	SUPERIOR TO THE PROPERTY OF TH	0.01700	PWGT	Heal Treating	Description		37.00
0	Copper	THE PERSON NAMED IN THE PE	0.18000	PAGT	TEMPER TEMP P	5	Fahrenheir	Sun on
٧.	Vanadium		0.00400	PWGT		Austenitize Ten	Temp in Fabrenheit	1000 - 000
C	Columbium		0 00400	TOMO	S TEMP S	Crimes selicit from in Sabranta	y as rest classes.	OCT OCE
ж	Microgen		0.00570	PWGT	MAGHETISM-HT	Magnetiam in Gauss	TANK THE PRINT STATE OF THE PRINTS TO	2002 - 200
I	Ideal Diameter		6.62910	IN	TIME AT TEMP	Time at Temperature	tura	Beport
Cleariness D	Description		Value	Units	QUENCH MEDIA	Quench Media Requireme	quiremente	D/M9d
	SAE J422 Oxide Rating	which the state of	0.0 - 5.0	MUM	STRESS PREE	Cert stress free	<u>R</u>	CERTIFIED
1	SAE J422 Silicate Rating		0.0 - 5.0	NUN	HT4140-42QT	Quench & Temper		CONFORMS
Cit	Report macro etch results.			Ŀ	fill Processing	Description		Value
DIAMETER	Di amakar		Schlox		MELT COUNTRY	Melead in Country	£X	BRA
	Description	A STATE OF THE PERSON NAMED IN	Walley 4 . 0023	1170	NOULEND COURTERS	Rolled in country	A3	BRA
	1/16 inch from Quenched End	O.	59	HRC	ASTAI Standard	Basellolloll		7.10
2/	2/16 inch from Quenched End	4	59	ЭВН	10-WE61/E61V	Grade B7		SNEOSNOO
3/	3/16 inch from Quenched End	SA.	58	SEC	A434-90a-8C	ASTMA BC Tensile	and Yield properties	COMPOSING
4/	4/16 inch from Quenched End	4	58	HRC	Structure	Description		Value
5/	5/16 inch from Quenched End	3	8.5	HRC	PERCENT TM	Percent Tempered Marte	Martensite	80 - 100
6/	6/16 inch from Quenched End		57	HRC	MICROSTRUCTURE	Reported Microstructure	ructure	MI
/L	7/16 inch from Quenched End		5.7	HRC	Tag Number		Oty Units	Length
/6	9/16 inch from Quenched End	3	57	HRC	022-2203726	A STATE OF THE PROPERTY AND A STATE OF THE PROPERTY OF THE PRO	581 8588	22ftloin/21ftloin
30	10/16 inch from Ovenched End		22	2000				
11	11/16 inch from Quenched End	10	55	HRO				
12	12/16 inch from Quenched End	A	54	HRC				
14	14/16 inch from Quenched End	g	52	HRC				
16	16/16 inch from Quenched End	id	51	HRC				
18	18/16 inch from Quenched End	id .	49	HAC				
20	inch	ă	46	HRC				
22		ă.	43	HBC				
24	24/16 inch from Owenched End	ā. lā	43	HRC				
26	/16 inch from Ouenched Er	2 2	4.7	NAC.				
0.7	40/10 INCH EZOM Quenched End	d	42	MRC				
28/16	The said the company of	d	42	HRC		And the state of t		
tio lags with Eaton Steel	Cast Contract of the Contract		their religions sensitive about part of	Allere surface	The second secon		THE RESERVE THE PROPERTY OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN	
We hereby partify	Bundle tags with Eaton Steel denoters released the steel grade, heat, purchase order number where applicable, part number, product description and quantity. Material produced in accordance with Eaton Steel's Quality Manual QM-00002 Rev 6 dated \$1/21/2013	at, purchase order nur	for more approach, por m	union, provi	d description and quanting	y. Material produced in accor	dance with Eaton Steer's Quality Ma	ual Ow-00002 Ray 0 d













CERTIFICADO DE CALIDAD CERTIFICADO DE QUALIDADE QUALITY CERTIFICATE

Page 1/2

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EATON STEEL BAR COMPANY		4140IKE	BITOLA/SIZE	
NORMA/SPECIFICATION			AUL, 90 nag	
SPEC FOR ITEM 8168 006 23.01.2014				
Nota Piscal/Invoice Pedido/Cust.Order		- 1		
		×	Peso/Weight (Kg)	
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CHARQUEADAS







CERTIFICADO DE QUALIDADE QUALITY CERTIFICATS CERTIFICADO DE CALIDAD

Page 2/2

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PART MIMIER	The state of the s								-	NO HEAT TREATMENT	THE ST	1		1
	PEDULAR TOUT INC.	BT (ENG)		MAISKIAL/MAISKIAL	MATERIAL				, , , , , , , , , , , , , , , , , , ,	02120			CORRIDA/HEAT	TABAT
83.68	•	40,553,000		705013345					3	NOULES!			12080470	_
CLIENTE/CLIENT				SONT I DADE / GRADE	/GRADE				M.18	BITOLA/SIZE				
EATON STEEL BAR COMPANY				4140TKR					101	101,60 mm				
TEMPERABILIDADE/WARDENABILITY						A PROPERTY OF THE PERSON NAMED IN COLUMN NAMED	On Particular Section 1	- Annual Control of the Control of t		***************************************	NAME OF TAXABLE PARTY.	-	and the second s	
1/16* 2/16* 3/16*	4/16"	5/16*	6/16*	7/16"	8/16"	9/16*	10/16*	11/16*	12/16*	14/16*	15/16*	18/16*	20/16" :	22/1
HRC HRC HRC	HRC	HRC	HRC	HRC	HRC	HRC	HRC	HRC	HRC	HRC	HRC	HRC	HRC	2 4
59,5 59,1 58,8	58, 2	58,0	57,8	57,5	57.0	56,5	\$6,0	\$5.6	54.0	52,5	51,3	49,8		÷
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6,9941 : 1														
OBSERVAÇÕES/OBSERVATIONS								DEPARTAMENTO		DA QUALIDADE / QUALITY DEPARTMENT	/ QUALIT	Y DEPARTM	ENT	
Meltshop route: RAP, LF, VD, CC.						**********		23		BR-ML-CHARQUEADAS-APP. 20.09.2017	PP. 20.05	.2017		
Made in Brazil at Gerdau Charqueadas.														
Produced according to ASTM A304 and ASTM A322	222					***************************************) >			*******
Reduction Ratio: 7,1:1 Melted in Brazil						**************************************			<u> </u>	kunte	me			
Rolled in Brazil										À	******			-
ENVIRONMENTAL RECOMENDATIONS RELATED TO PRODUTCS: In order to contribute with the environment and mustainable development of our productive chain,	DUTCS:	inable de	velopnen	t of our j	productive	chain,		ANDRÉ L.		SILVA FACUNDES CREA 0582601000	S CREA 06	82601000		
to the environmental legislation of your region, state or country.	gion, state	e or coun	try.											
						-								

Lab Services Report

(248)398-1434 facsimle enoriques 8725-5A2(84S) Oak Park MI 48237 10221 Capital Avenue

METALLUROY, L.L.C. MATI

Randy Call

Oak Park, Mi

eunevA listigs > 00401

Processing Company, L.L.C.

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10400 Capital Avenue Processing Company, L.L.C

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17-4982 12/20/2017 Report Date:

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HBW Surface

823764

Round

99

Reduction of Ansa, %

This recont contains results for the indicated services performed on the following sample(s): moo.qtfolloqs@ilson

ETIE 801 487558 12080470 1-2865-11 Customer Sample ID Heat **Gi elqma8 natiT** Work Order 4145 ebend 000.4 Size Shape Fluish HR 9998 oN fied

Report Approved By: Steve Avery

88F-M83 MT2A Mechanical Testing

TI-013 MTSA

Mechanicals tested at Midradius Test Comments 134,400 153,100 1-2884-71 led , bleiY Gl elqms8

61

Elongation -

t to f egeq S881-Tr:Ol noq9R

All testing performed by Titan Metallurgy was done at ambient (room) temperature. Any services within a section marked with " are not part of Trian Metallurgy"s current AZLA accreditation.



9/9



10400 Capital Avenue • Oak Park, Michigan 48237 • (248) 398-3434

CERTIFICATION OF HEAT TREATMENT

Date: 12 / 29 / 2017 Certification Number: 17 - 0888

Customers Order Number: 823764 Part Number: 8168 - 8556

Heat Number: 12080470

Heat Treat Job Number: 3173

Material: 4140 Quantity: 84 Pcs. Weight: 83,449 Lbs.

Description: 4.0000" Dismeter x 23' 4" Length Per Specification: ESHT HT4140 - 42QT

Temper	A/N		
l'emper	J. OSTI	2 Hours 35 Minutes	Air Cooled to Amblent
Spray Quenched	4. 6'70T - 4. T'86	A/N	1916W
Austenitized/Hardened	J. 5/5T	I Hour 30 Minutes	
teadard	A/N		
Vormalized	A/N		
	91u1619qm9T	Time at Heat	Coolant

Method of heat treat monitor, set point thermocouple (Type K). Equipment calibrated per AMS2750E. We hereby certify the above material has been treated in the manner described are correct as contained in the records of Apollo Heat Treating and Processing, LLC.

Randy L. Call Plant Manager

Apollo Heat Treating & Processing, LLC

カノカ



10400 Capital Avenue *Oak Park, Michigan 48237 • (248) 398-3434

CERTIFICATION OF HEAT TREATMENT

Date: 12 / 29 / 2017

Certification Number: 17 - 0889 Customers Order Number: 823764

Part Number: 8168 - 8556

Heat Number: 12080470

Heat Treat Iob Number: 3173

Material: 4140 Quantity: 91 Pcs. Weight: 91,375 Lbs.

Description: 4.0000" Dismeter x 23' 4" Length Per Specification: ESHT HT4140 - 42QT

(ember	A\N		
reqmer	1750°F	2 Hours 35 Minutes	Mir Cooled to Amblen
peray Quenched	4. 6'00T - 4. T'86	A/N	1916W
benebisH\bestitnestan	J. 5/5T	1 Hour 30 Minutes	
tesdar	A/N		
Vormalized	A\N		
	anuteraqma1	tseH ts emiT	JusiooD

Method of heat treat monitor, set point thermocouple (Type K). Equipment calibrated per AMS2750E. We hereby certify the above material has been treated in the manner described are correct as contained in the records of Apollo Heat Treating and Processing, LLC.

Randy L. Cáil Plant Manager

Apollo Heat Treating & Processing, LLC

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		-		+			1 51	AAPDNESS (DI IBONETEB BEADII
		 		+			1	TAPE OF MATERIAL
WEBSTER	ם אחם	A AUG	НКВ		HB		1	MILOS WILDIN
Gazogani	0 0110		ILTS BELOW				A H	3 - 200- 100
	SS CHECK.							COT SAMPLE PIECE
г								110 17111010011177
						M	\	DOES THIS REQUIRE AN EXTRUSION REPORT
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							^	DOES THIS MATERIAL REQUIRE
						N	1	CORRECT M# ON THE MATERIAL
			7.00			N	10	ORRECT MATERIAL IDENTFICATION
	Thi	ht to	02 h08 0	c1 :4	H	N	(1)	СОВВЕСТ ВЕЕ # ТО LINK CERT
				1100.0		(N)	人	РНОТО РЕQUIRED
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						N	(4)	CORRECT GRAIN DIRECTION
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	S	COMMENT					(CVE	DESCRIPTION
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Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

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ENGINEERING SIGNOFF (if required)

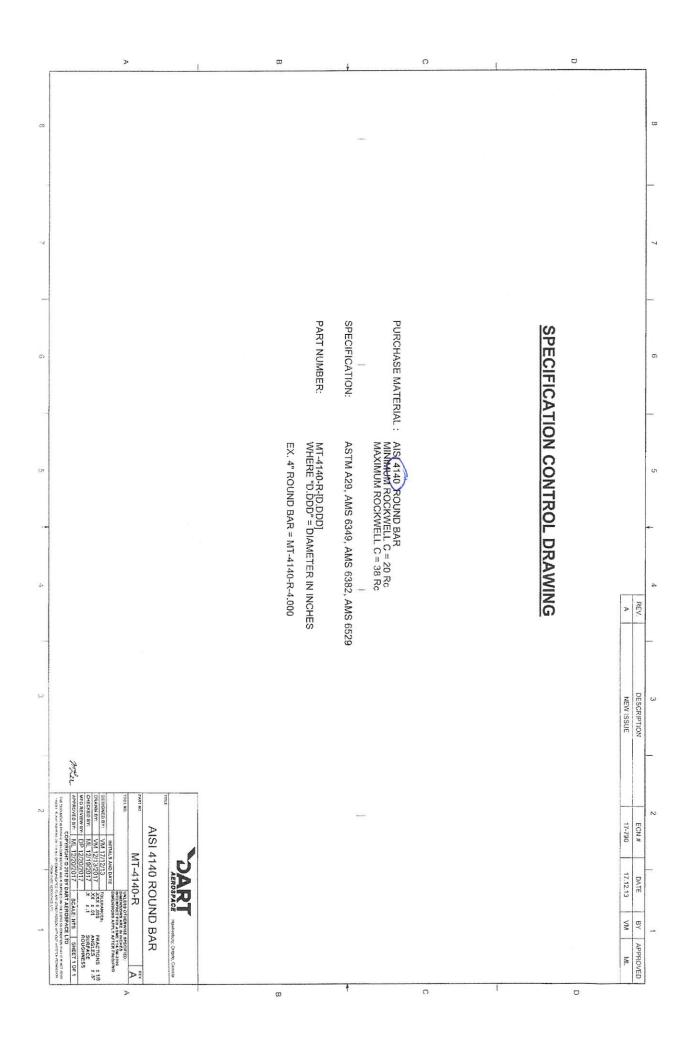
SIGNED OFF BY:

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INSPECTED BY:

QC 18 INSPECTION





CERTIFIED MILL TEST REPORT

Altan Smel Test tab #5 Cir. Smed Altan, R. 62007-9911 (618) 463-4490 EXT 2466 (619) 463-4491 (Flad)

	177569	Hass Murches		Series and the series	177599	1	177569	Heat Number	HORT (Standard Control	Jamin Bescription Steel Bay, Hot Rollant, 1,0000, 25" 0 "	ASS ON HA.	Data	dakena, terresserverenes simoz	BILL TO
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Abusings or reprojection of this report, except in Set, is not already address without appropriate to a representative of Anna Establi Interpropriate.

I thereby study that the shows locate are correct as southeast of the records of AL TOM STEEL INCLUDE CONTROL

In the records of AL TOM STEEL INCLUDE CONTROL

Quality Calader: Scott Holl

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R4140-14-V PO.12367

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rills Length Bs 246E61n 246E61n nsteefe Questy Manual QM-00002 Rev 0 dated 11/21 nn Steefe Questy Manual QM-00002 Rev 0 dated 11/21	REPORTED MICROSTRUCTURE B147 2935 Liss B1487	oduct description and qua	л пипьег, рхо хпрапу госо	umbor where applicable, pa of data, represented in co	eat, purchase order n	in Steel identifiers relevence the steel grade, in onformation to be in conformation	Eundle tags with Eato
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Value Unit	Reported Microstructure Opyl 2925		The second secon	Annual Schools and Control of the Annual Ann			
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Velue 80 - 100 TX Length 246t6in	Reported Miorostructure Oly 2925		HRC	36	bd	28/16 inch from Quenched End	28
Value 80 - 100 TH Length 24656in	Reported Microstructure Oly 2925		HRC	39	pd	24/16 inch from Quenched End	J24
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Velve 80 - 100 TX Length 24Ec61n	Reported Microstructure Oly 2925	1 1 1	HRC	41	and	20/16 inch from Quenched End	J20
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Value 80 - 100 TH Length 24EESAn	Reported Miorostructure Oly 2925	1	HRC	42	and	16/16 inch from Quenched End	316
Value 80 - 100 TH Length 24655in	Reported Microstructure Oly 2925		HRC	45	Dd.	14/16 inch from Quenched End	J14
Velue 80 - 100 TH Length 24Ec6an	Reported Microstructure Oly 2925	.l	SRE	47	pd	12/16 inch from Quenched End	J12
Velve 80 - 100 778 Length 24ftein	Reported Microstructure Gly 2925	1	HAC	The second of th	and	11/16 inch from Quenched End	211
Value 80 - 100 77 Length 246te5in	Reported Microstructure Gly 2975	1	HAC	50	nd	10/16 inch from Quenched End	J10
Value 80 - 100 TH Length 24665in	Reported Microstructure Oly 2925		HAC	76	ď	9/16 inch from Quanched End	J9
Value 80 - 100 TX Length	Reported Microstructure ON	022-2158147	HRC	52	d	0/15 inch from Quenched End	Je
Value 80 - 100 TW	Reported Microstructure	lag runner	HRC	54	ā	7/16 inch from Quenched End	37
Value 80 - 100		MICROSINGCRUMA	ЯЖС	55	D.	6/16 inch from Quenched End	J6 + .
Value 80 - 100	CHOLDER HEIGHT STATE OF THE PERSON OF THE PE	EDECOMA AN	HISC	56	ħ	5/16 inch from Quenched End	J5
Value	Description Townsend Martenaite	Simplific	NKC.	56	ā	4/16 inch from Quenched End	J4
	Description	200 DOC 10 CENT	TARE .	20	Ď,	3/16 inch from Quenched End	13
Property as	ASTMA BC Tensile and Yield properties	2474-003-80	780	20	ď	2/16 inch from Quenched End	J2
Grades	Steel Barg, Alloy, Standard	N322-13	7 2 2	50	Ď	1/16 inch from Quenched snd	31
and Quench Reg COMPORMS .	Carbon & Alloy Steel Bars End Quench Req		Jan	Santas		Description	Jonney
CONFORMS .	Grade B7	-	-	Volum	Constitution of the Consti	Diameter	DIMETER
Value Units	Description	ASTM Standard	0 778	20100		Description	Geometry
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Report .	Time at Temperature	TIME AT TEMP	LUMB	2 2222	NAME OF TAXABLE PARTY O	Copper	3
0 - 20 GN	Wagnetism in Gauss	MAGNETISM-HT	TOWG	0 25000	CONTRACTOR	ALUMATAN	Al
Pahranbeit 500 - 2500 DEGP	Stress Relief Temp in Pahr	SR TRAD F	TOWE	0.00500	NAME OF A PARTY OF THE PARTY OF	MOLYDOGETHAM	NO
it 1600 - 1700 -	Austenitize Temp in Fahrenhe	AUSTEN TEMP F	TOWG	0.75900	ANY WASHING OF THE PARTY AND ASSESSED.	Chromaum	A CONTRACTOR OF THE PERSON OF
500 - 2500	Temper Temp in Fahrenheit	TEMPER TEMP P	DWCT	0 84700	AND	TOXOL	The second secon
	Description	Heat Treating	PWCI	0.08900	and the second s	Salacon	82
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138000	Yield Strength in PSI Units	ISG CTRIA	PWGT	0.89000	THE PROPERTY OF THE PROPERTY O	Same and an	C.
-	H		LOMG	0.41000		Carrigion	Chemistry
Value		Mechanical	Units	Value		Participan	
	Steel Job 828517.	ampleted from Eaton	ind were co	ed by ALTON STEEL a	Heat 177569 issu	All bundles listed below were produced using steel from Heat 177569 issued by ALTON STEEL and were completed from Eaton Steel Job 828517.	bundles listed be
1 HR RD 4140/42MM 24tt8in SBQ QTSF FG MST	506295 1 HR RD 414		11142 rev 005	B38384	13-Dec-2017	222244	
ption	Customer item Item Description	D C	Item	Customer PO	Ship Date	ВОС	Customer
		900	10001	Certificate	spection	el Bar Company Inspection Certificate Todocoo	Eaton Steel
EN 10204:2004-3.1		020	1000	Cautificato			

CAT Hardness Toet Data Chemistry Data Sales Order Hent Number Stra Turned OD Test Remerks: 1 HR RD 4140/42MM 25FT FQ FG MST Approved D By Metallurgial GO GERDAU 25 Commercial Road, Huntington, IN 49750 (266) 350-9620 R HerdneseType Heat Number
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 4140 41745 177869 1.0000 1.0000 5 Huntington Facility - Test Report Max Location
27.4
32.7
39.7 Customer Name Lecation fax (250) 366-9522 LW 828517 EATON STEEL CORPORATION 10221 CAPITAL AVE. OAK PARK, MI 48237 Corp Sample Location Surface Mid Radius Approved Date 10/24/17 胡二% Printed 19/24/2017 11:10 AM

Straightness 0.12575 Ft Magnatism (gauss) ++-5 As Quanched (Re) Microstructure

Produced Stress From

Other Test Data Decarb (Inches)

Austentized at 1,630°F for 0.7 minutes Temperad at 1,400°F for 0.7 minutes

isal Treat Data

NO KE Tensila

138 Kg Yakd 1

2% Offset Method 1 Q&Y Tension Tost Data

Sample Gage: ,500° Ota. Bele Number:

Yald 2

Method 2

Elong %

RIA % 52.0

Gage Langth 2.000° GL.

Tensile Location

PC#

Center

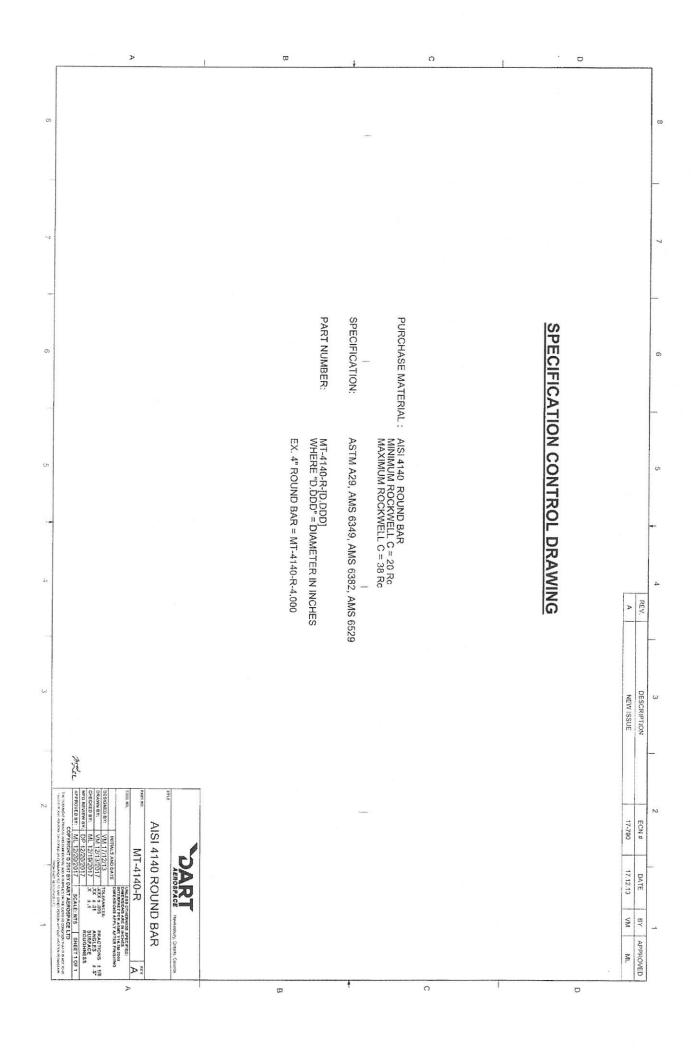
Induction Heating Water Quenched

17.0

We hereby certify that the reported distatate control, scornting to Gerdau bests and shope of the suppliers.

422637 Page 1 of 1

F037A



SPECIFICATION CONTROL DRAWING PART NUMBER: SPECIFICATION: PURCHASE MATERIAL: AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR EG. 5/8" ROUND BAR = MT-4140QT-R0.625 MT-4140QT-R [D.DDD] WHERE "D.DDD" = DIAMETER IN INCHES ASTM 4140 QT or ASTM 4142 QT REV. ۶۰ Erm 4.922 DESCRIPTION NEW ISSUE AISI 4140 Q&T ROUND BAR DATE BY 17.09.12 VM APPROVED MM

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MATERIAL RECEIPT INSPECTION FORM

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:3TAQ					BATE: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				
SIGNED OFF BY:					H			INSPECTED BY:	
ENGINEERING SIGNOFF (if required)								OC 18 INSPECTION	
		ā	the Quality Offic	ni bətsəol	siers	0]			
						10	MOABR READIN	ARDNESS / DUROME	
							3	SIZE OF TEST SAMPL	
								JAIRETAM 40 BAY	
WEBSTER									
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COMMENTS						1		DESCRIPTION	
32112711100					75.55	NCE			
SHEET SIZE RECEIVED: SHEET SIZE ORDERED: THICKNESS RECEIVED: THICKNESS ORDERED:							.ep: <u>%</u>	MATERIAL CERT RECEI/ CUANTITY INSPECT COBREMI YTITNAUD COBLEMI YTITNAUD	
PO / BATCH NO.: (0040374/504306					M7-4140 87-61.000 81/(0)81: AIN BATAM				

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in